

# The Mining Journal

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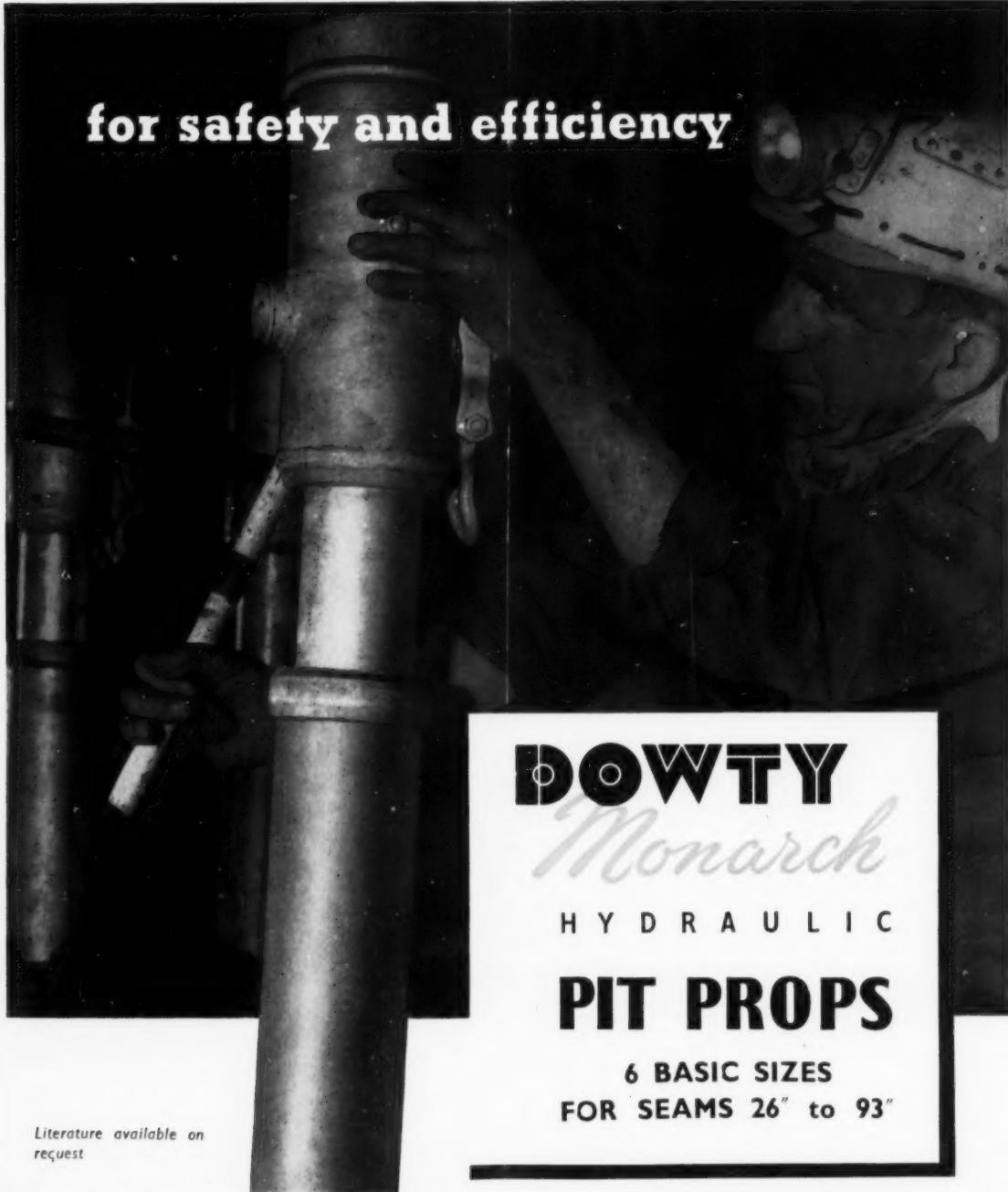
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LONDON, MARCH 9, 1956

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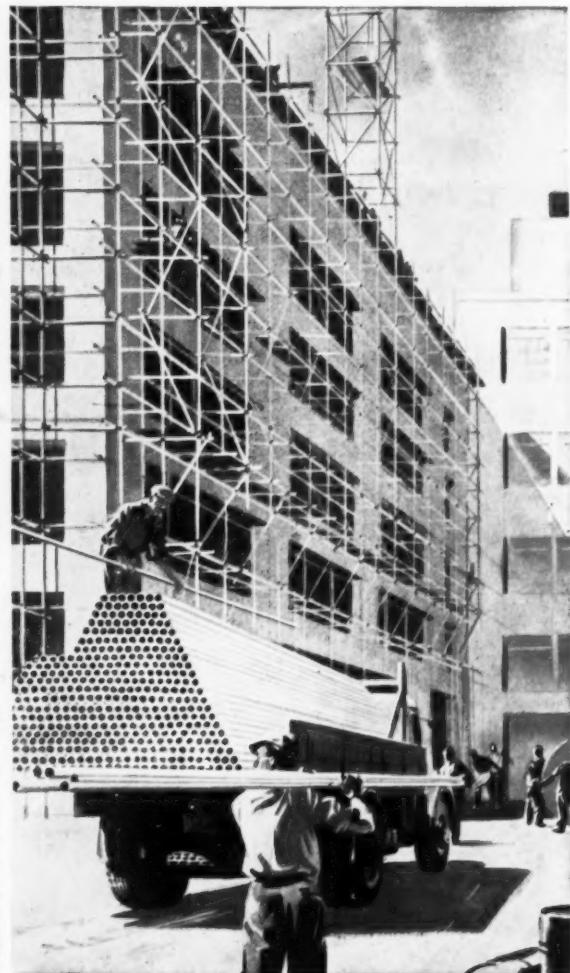
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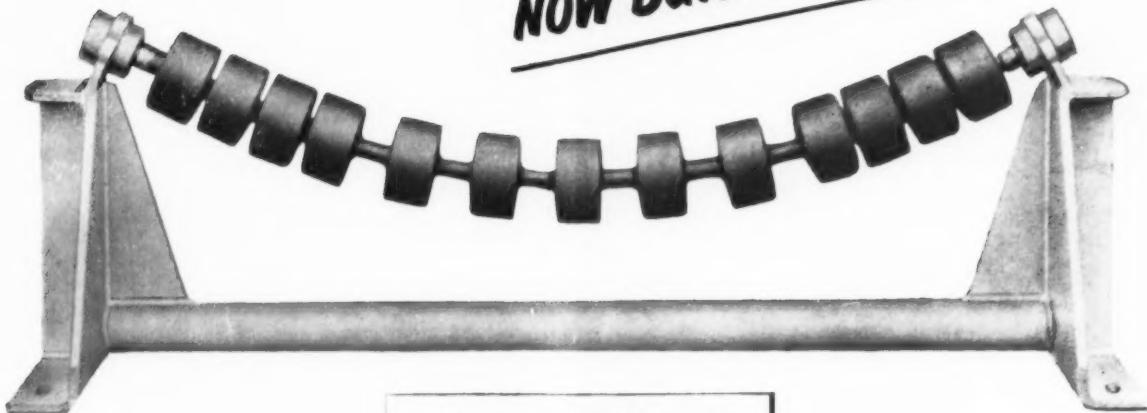
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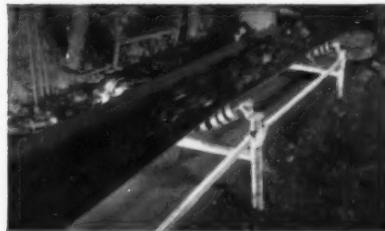
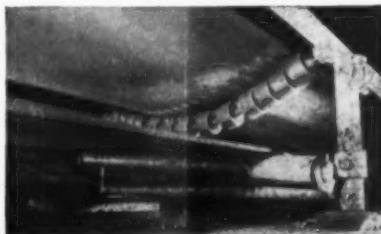
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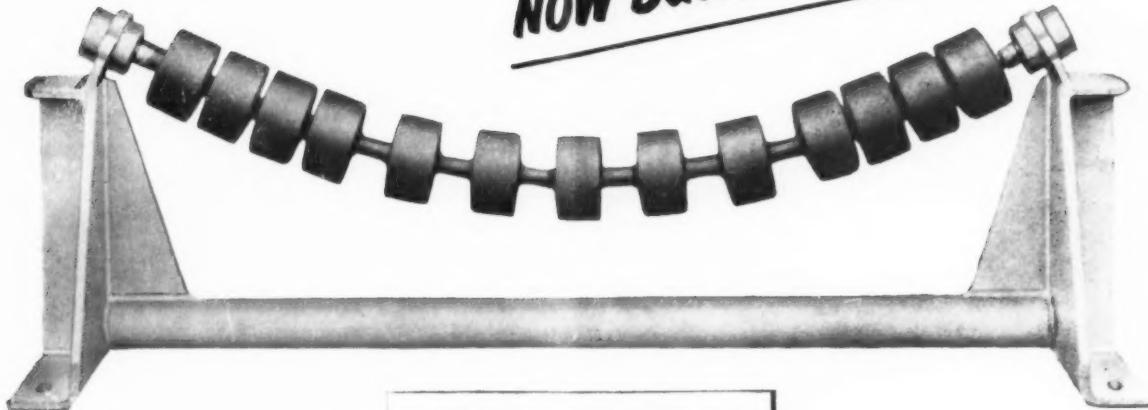
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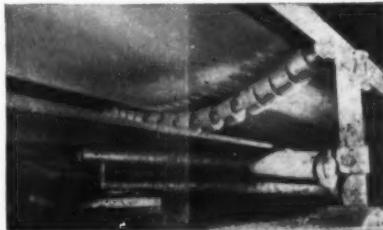
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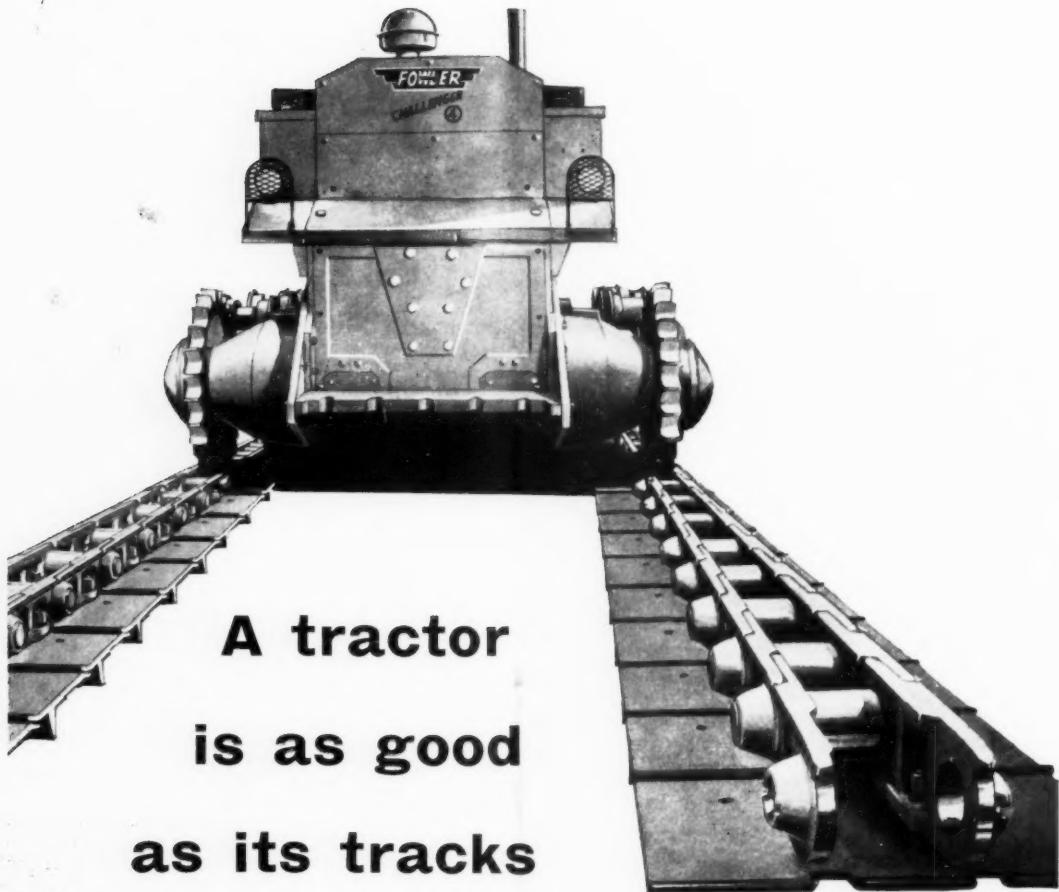


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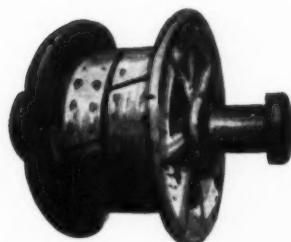


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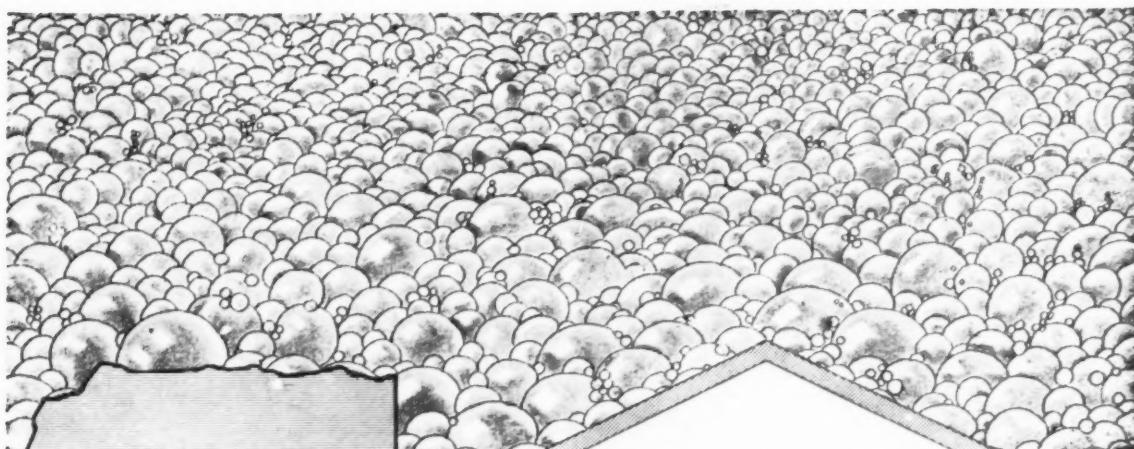
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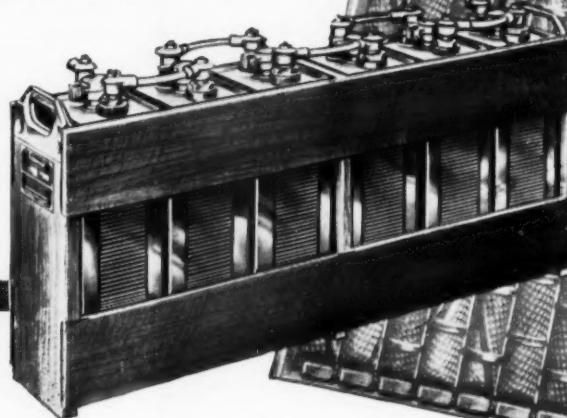
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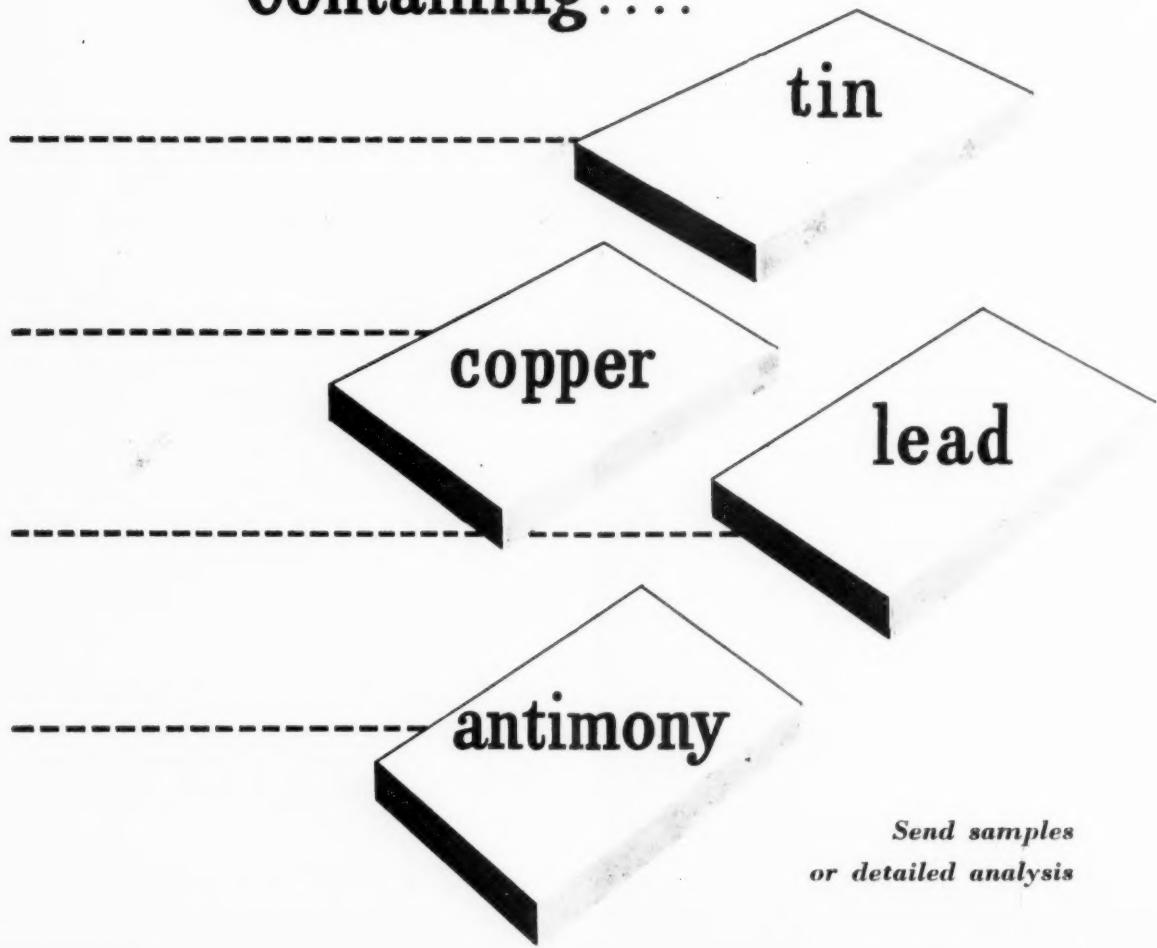
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## NOTES AND COMMENTS

### African Labour on the Copperbelt

The encouraging progress report recently issued by the Northern Rhodesia Chamber of Mines underlines the energy and rapidity with which is being implemented the first step in African advancement under the agreement reached between the Copperbelt companies and the European Mineworkers' Union. It will be recalled that 75 categories of jobs are involved—24 of which were transferred to African workers under the agreement while the other 51 involved the advancement of Africans into newly created jobs outside the European sphere. It is expected that by the middle of this year some 500 Africans will either be in advanced jobs or be undergoing training for such jobs, and eventually about 1,000 Africans are expected to secure advancement to one or other of the 75 categories.

In other words, about three per cent of the African working force on the Copperbelt comes within the present advancement agreement, which provides that no further measures of advancement can be introduced before the autumn of 1958. It should also be remembered that of this three per cent quite a large proportion will go to members of the African Staff Association which by agreement with the African Mineworkers' Union shall include among its membership highly skilled operatives whose work includes an element of supervision.

It is thus apparent that the present advancement measures make little if any practical impact on the rank and file of the Mineworkers' Union. Consequently, in terms of union politics, the advancement agreement does not figure in the minds of the union leadership as a major gain. Agitation for the principle of African advancement was no doubt a useful policy plank so long as advancement was denied, but once recognition had been given in the advancement agreement (to which, incidentally, the African Mineworkers' Union was not a party) the agreement ceased to have any immediate value to the Union. This, in part, will serve to explain the rejection by the Union of the detailed advancement proposals (published at the end of last year) on the grounds that the wage differential between maximum African earnings in the new categories and the lowest European earnings was too great. (It is true that the Union has also opposed the proposals on the grounds that the educational standards required are unnecessarily exacting, but this is unlikely to be

a practical obstacle as the companies have made it clear that they do not intend to enforce these standards in the case of employees of long standing whose capabilities are known and who show themselves well able to perform their new duties.)

In any event, the opposition to the advancement proposals on the grounds of the wage differential is a practical issue from the standpoint of the African Mineworkers' Union, and as Union matters now stand the bosses badly need a good popular issue on which to rally membership support. The Union's finances are reputedly not in a strong position. On the one hand there appears to be an excessively large force of full-time paid officials who are in the main not themselves either ex-mineworkers or in other ways closely identified with the rank and file. On the other hand, paid membership is now believed to be down to about 12,000 out of a total of about 35,000 Copperbelt workers. It is true that the union itself claims a membership of 30,000 but the companies believe that at least 60 per cent of this total represents names enrolled at one time or another on the union's books but no longer paying dues.

It would thus appear to be a matter of urgency to the union bosses that effective membership should be stepped up if, with its present heavy pay roll, the organization is to remain solvent. Consequently, equality of reward rather than equality of opportunity is to-day the union's central cry. In this context the claim for 6s. 8d. per day all round, which is at present at arbitration, is an obviously popular platform. The validity of this claim is, however, another question to which we shall revert in a moment. First, however, it is worth considering the possible consequences to the Union of the failure of this claim.

Faced very possibly with bankruptcy if the dues paying membership cannot be built up, it is quite conceivable that the bosses would risk strike action over their pay claim as the only remaining weapon for rekindling union interest. Given the strong-arm tactics which were employed on the occasion of the last strike, it is probable that the union could again bring out a high percentage of its members—paid up or otherwise. This is not to say that the strike would be successful, and indeed the energy with which the companies recruited between 7,000 and 8,000 Africans from outside the industry during the last strike suggests that it

would not, more especially if the companies saw in the strike the opportunity of breaking the present union control. It should be stressed that the companies are in no sense anti African union in principle, and indeed the unionization of African labour would seem to be an indispensable element in the concept of the partnership ideal. The companies are, however, seriously concerned at what appears to be the exploitation of the rank and file by the existing hierarchy and one suspects that the opportunity of reconstituting the union on more democratic lines would be welcomed.

It is worthwhile giving some detailed consideration to the union's claim for 6s. 8d. a day, and more generally to the charge that the differential between African and European earnings is too large. In the first place it should be realized that the African union does not claim parity with European rates, but merely asserts that the existing gap is much too large. As matters stand at present, the maximum African earnings in the extremely small categories of top paid jobs (which in any case are held principally by African Staff Association members) work out at about £40 per month inclusive of copper bonus (which stands at 22 per cent but fluctuates much less sharply than the European bonus) and of certain basic allowances for rent, food, water and light. Although the top rate is as high as £40 a month the average for union members as a whole is considerably less than half this. Against this, the lowest European earnings (with the Copperbelt bonus standing at 104 per cent) works out at £175 per month plus hidden benefits such as subsidized rents and free medical services worth about another £35-40 per month. African annual leave with pay amounts to two weeks while European annual leave is at present six weeks and the European union has, at the moment, a claim at arbitration for this period to be increased to eight weeks.

These comparisons show clearly enough why the African union is concerned largely with differentials as expressed in their present claim for 6s. 8d. a day (say, £10 a month including bonus). It is, however, quite another matter to say that it would be realistic to grant a claim of this magnitude which, for the majority of Africans, would represent an increase of at least 50 per cent on present earnings. It should be remembered that the African on the Copperbelt has in a mere twenty years advanced from a primitive tribal existence to an industrial and social status considerably in advance of that achieved by African miners in the Union over a period three times as long. Moreover, this relatively greater advance has been achieved despite the fact that the general level of African wages outside of mining remains higher in the Union than in the Federation. Even in the Gold Coast the highest paid African artisan (who, incidentally, is also enfranchised) is unlikely at present to be earning more than £12 a month all in, which, allowing for value received in kind, is about as much as is earned by the lowest grade of unskilled African on the Copperbelt.

In the last ten years alone African average cash earnings have increased about 400 per cent and there is every sign that the African standard of living will continue to rise. However, to attempt to increase the tempo of economic advancement too rapidly could be almost as disastrous as rigid suppression. The social advancement of a backward people is dependent on the women no less than on the men and on the Copperbelt the almost total illiteracy of the women remains a serious bar to progress.

Aside from the obvious dangers of increasing African earnings faster than African education, it should also be remembered that the differential between the African and the European wage packet has been quite unrealistically widened due, in the main, to the absurd level to which European wages have risen in consequence of the present inflated price of copper, which at present more than doubles the

base wage, and due to a lesser extent to large housing subsidies—worth anything from £30 a month up—which are a legacy of an earlier period when wages were much lower and labour harder to come by. The gap between the highest African earnings on the Copperbelt and those of the lowest paid European miner on, say, the Rand is, of course, very much less, and if a comparison is made with minimum earnings in British coal pits the gap appears almost non-existent.

Against this background the African union's present claim loses much of its validity and it is difficult to imagine the arbitration tribunal viewing it very sympathetically. The European Mineworkers argument that the African should be paid the rate for the job is, of course, a nonsense as was demonstrated during the last African strike when Europeans put up infinitely higher productivity figures on jobs normally performed by Africans. At the same time the European union is clearly obsessed by the threat of cheap African labour and is already saying that it does not see how it can consider any extensions to the advancement agreement while Europeans are finding it difficult to obtain employment on the Copperbelt. This argument is too fantastically naïve to be taken seriously, as under no conceivable circumstances, with the copper bonus at 104 per cent, is there likely to be other than an excess of Europeans streaming into the area to seek employment. Similarly, the European union's cry for more white immigration to defend white supremacy is another example of muddled thinking. It is only necessary to go from Kitwe to Johannesburg to appreciate the social and economic problems provided by an excess of unskilled white labour. What is needed in the Copperbelt is a controlled and selective scheme of immigration, while those Europeans, who are unwilling or unable to fit themselves for supervisory tasks, should be given every encouragement to seek employment elsewhere.

However, actions speak louder than words and too much emphasis should not perhaps be placed on what the European Mineworkers' Union is currently saying. Three years ago it appeared inconceivable that the union would sign the kind of advancement agreement which was in fact signed last autumn, and it would be unwarranted pessimism to suggest at this stage that realism will not again carry the day when the next stage in advancement comes to be discussed with the companies.

Veto or no veto, the inescapable fact remains that the companies must carry the European union with them on this question of advancement and now that African aspirations in this matter have been recognized in principle (and indeed a beginning has been made in practice), no useful purpose can be served by playing up to British or American liberal opinion with an excessive show of "progressiveness" which can only serve to scare the European union into a rate for the job mentality. The essential point is that the opportunity for African advancement should more than keep pace with the ability of the African to take advantage of it. This is being done. The point is, not that there must be scope to-day for large scale advancement, but that *patently* there should be no obstacle to advancement other than the ability of the individual to qualify himself. And this in itself, present African education standards being what they are, is likely from the European union's viewpoint to provide an effective enough break on the rate of African advancement.

#### Disposal of U.K. Government's Surplus Copper

The recent U.K. Government's White Paper on Defence was silent on precisely which non-ferrous metals would be disposed of, and in what quantity, in pursuance of its policy of running down strategic stockholdings. It did, however, make a lot of the Government's intentions of not disrupting the market in the process and of consulting with interested parties, and it is certainly to be hoped that such

consultations will take place as soon as possible. On past experience, it seems likely that the disposal will either be by means of Government tender or by means of selling on the London Metal Exchange through Government broker. Which method is ultimately chosen will presumably depend upon the real objects of the disposal.

If the Government wish to obtain the very best prices for metals they are likely to adopt the first procedure and sell for delivery and pricing over an extended period. Going by what happened on the previous two occasions when copper was sold by this method this will probably raise the present price level. If, however, top prices are not the only object and it is considered that this disposal gives an opportunity to reduce price levels all round with the consequent assistance to the export trade as a whole, then the method of selling through a Government broker is obviously to be preferred, as by operating direct on the London Metal Exchange prices are likely to fall after an initial period when metals will themselves flow out of the country.

Moreover, if sufficient tonnages are available this latter operation could in the long run benefit the London Metal Exchange by putting stocks into the hands of its members, thus enabling them to dampen down fluctuations and finally re-establish the Exchange as the centre of the world's metal trading.

#### Purification of Brackish Water

The demineralization of mine waters was discussed in a recent issue of *The Mining Journal* (September 30, 1955, pp. 378, 379), in which attention was drawn to the immense disposal problem presented by the 10,000,000 gal. of brackish water pumped to the surface daily by mines in the Welkom area of the Orange Free State. Reference was made to the promising results obtained at the National Chemical Research Laboratory, Pretoria, where mine waters are being successfully desalinated on a plant capable of handling about 250 gal. of water per hour. The process employed is known as electrodialysis and involves passing a direct electric current through the saline solution in such a way as to separate the sodium ions and the chlorine ions. This is done by passing the brackish water through a number of very narrow compartments separated by selective membranes. The difficulties associated with this process are primarily economic rather than technical. The success of the South African experiments is ascribed largely to the development of a new type of selective membrane, claimed to be much cheaper than any membrane hitherto developed.

From data obtained on a laboratory scale at Pretoria it was calculated that the overall cost of demineralization would be in the region of 2s. per 1,000 gal. of fresh water. This finding has been confirmed by results obtained on a pilot plant scale at Welkom, where Anglo American have erected a plant capable of purifying 25,000 gal. a day, equivalent to about 80 per cent of the brackish water put through the process. The balance is converted into a concentrated saline solution and disposed of by evaporation. The success achieved by the pilot plant may lead to the erection of a full-scale plant capable of treating 2,000,000 gal. a day, which is reported to be under consideration.

In some respects the situation of the Orange Free State gold producers has hitherto borne a certain resemblance to that of the shipwrecked mariner with "water, water all around him, but not a drop to drink". Though a single mine in the Welkom district may have to dispose of 2,000,000 gal. of brackish water daily, the goldfields are at present obliged to draw some 40,000,000 gal. of water a day for the requirements of the mines and subsidiary industries. Desalinated water can now be produced for less than 2s. a 1,000 gal., on which basis it would actually be cheaper to use than water purchased from the Rand Water Board.

## Brazil

(From Our Own Correspondent)

Teresopolis, February 7.

Juscelino Kubitscheck, who assumed office as President on January 31, has outlined his plans for 1956-60.

Annual production of coal will be increased to 2,500,000 tons; cement to 5,000,000; finished steel products, 2,000,000; ferro-alloys, 50,000; aluminium, 50,000; other non-ferrous metals, to an amount to be determined. Production of crude petroleum will be raised to 40,000 bbl. per day, or 100,000 if drilling results permit; refining capacity is to be increased from 85,000 to 200,000 b.p.d. A 10,000 kW. atomic reactor will be installed and private initiative will be allowed to participate freely in prospecting, mining and industrial production of thorium and uranium.

#### NON-FERROUS METALS

Production of non-ferrous metals is still insignificant in Brazil and to ease the situation the Brazil-U.S.A. Geological Commission was instructed to speed up prospecting in 1955.

So far, Brazil's known deposits of zinc have not been thoroughly examined, while transport difficulties have delayed utilizing the immense nickel reserves of Sao Joao de Tocantins, in Goias. The present local demand for nickel and zinc is estimated at 1,000 and 30,000 tons, respectively, per annum.

In 1954 Brazil imported approximately 42,000 tons, each, of copper and lead, but supplies from abroad were cut by nearly 50 per cent last year. In June, 1955, Laminacao Nacional de Metais, Sao Paulo, started to reduce concentrates of copper, to obtain 3,000 tons of ingots annually, and aims to raise output to 8,000 in 1957. At present 50 per cent of the concentrates are imported from Chile, the remainder coming from the Camaquam mines in Rio Grande do Sul and from Itapeva, Sao Paulo. Provided regular supplies can be obtained from the Caraiba deposits, in Bahia, annual production of copper can be raised to 18,000 tons.

Primary and secondary production of lead is now about 5,800 tons yearly, but the two producers (Plumbum S.A. and I.P.T.) plan to increase output to over 10,000 in 1957. The recently-discovered lead mine at Blumenau, Sta Catarina, with estimated reserves of 1,000,000 tons of galena, is now being worked and the ore processed by Cia. Mineracao Sul-Brasileira. None of the other known deposits, referred to in *The Mining Journal* of January 21 and June 10, 1955, is being mined at present.

Brazilian production of tin is in the order of 1,500 tons annually, but the bulk of concentrates is still imported. The principal local source is Sao Joao del Rei, Minas Gerais, where processing plant has been installed and an electrolytic separator is being mounted. When these are operating the deposits will be able to supply Brazil's present demand for pure tin. Cia. Estanifera will produce 3,000 tons of metallic tin yearly.

Production of aluminium increased by 483 tons in 1955, to 1,933, while imports dropped by 9,000. Increased output is mainly due to Cia. Brasileira de Aluminio, which plans to raise its power supply from 16,000 kW. to 40,000 and produce 10,000 tons of aluminium in 1957. In January certain products, manufactured by the Company, were officially declared to be similar to those of foreign origin in price and quality. This means that imports will be prohibited unless it is shown that production is unable to supply market needs. The hydraulic potential within the area of the company's concession is sufficient to produce 50,000 tons of aluminium annually.

# Training Labour on a South African Gold Mine

Articles which appeared in our two previous issues discussed the outlook for the supply of labour in South Africa's gold mines. It emerged from this survey that the better utilization of manpower through more efficient training methods was a point of critical importance in averting labour shortages which threaten as the new developing mines reach full production. The following article which describes the training methods, developed at the Venterspost Mine—one of the Goldfields group—provides a particularly fine example of the work being done in this connection.

Approximately 300,000 Natives from many parts of Southern Africa are attracted to employment on the gold-fields of the Witwatersrand and the Orange Free State. They come from more than 40 tribes and speak as many languages and dialects. Approximately 98 per cent are tribal Africans who come to the goldfields to work for a specified period—12 months on the average—and then, having earned enough money to continue their farming activities, the vast majority go back to their villages which are remote from the mines. Around these villages the Natives cultivate crops and raise cattle and it is natural for them to wish to spend some time at home, particularly during the sowing and reaping seasons. Many return to the mines from time to time for further periods of employment but the general flow of Native labour is influenced to a large extent by the success or failure of agricultural pursuits.

## WIDE SCOPE FOR TRAINING

A total of approximately 224,000 of the Native labour force is employed underground and there are 21,000 Europeans who work underground with them and who are engaged mainly in a supervisory capacity. Great attention is devoted by the South African gold mining industry to the instruction of the Native mineworker and this work is carried out to a large extent in training centres which have been established on the mines for the purpose. The major part of the Native labour force is employed on manual work underground comprising many distinct tasks for which special training is required. Aptitude tests are widely

used to classify workers into the broad categories of supervisory, mechanical or non-mechanical proclivities.

At the Venterspost Mine, which is situated some 35 miles to the west of Johannesburg at what might be termed the beginning of the "West Wits Line," a training centre has been constructed within the confines of a waste rock dump.

## WORKING CONDITIONS REPRODUCED

Actual underground conditions have been simulated. There is a shaft head for teaching shaft regulations, a complete stope is provided at the average inclination of the underground workings, and several development ends are situated in such a position that the rock used for training in lashing and trammimg moves along in a closed circuit. These working places are equipped to comply with Government regulations which cover underground workings and with the mine's standard instructions. A separate bay is provided where workers learn, by actually doing the work themselves, to install timber roof supports, protective gate stulls and timber stope loading boxes. There is a lashing section where the correct technique of using a shovel is taught. Here *inter alia* is demonstrated the elementary but important difference in effective output between the use of an excessively worn shovel and one in good condition. The worker is also taught to appreciate that less exertion is required in loading from a smooth lashing plate rather than loading from a jagged footwall.

A large section of the training centre is equipped with air, water and ventilation pipes, and tracks for transporta-



The Native training centre at Venterspost G.M.



New recruits to the industry being trained in the correct use of the lashing shovel

tion of rock and material, for instruction to Natives allotted to this type of work. There are lecture rooms equipped with tools and small items of mining equipment, the names and uses of which are taught to new recruits. A suitable room is provided for showing training films.

#### TRAINING OF NEW RECRUITS

After the new recruits have been established in suitable living quarters on the mine they are given a short initial course of instruction of about a week's duration at training centres, such as that at Venterspost, before actually going underground. The object of the course is to prepare the new recruit for underground work by giving him a very elementary idea of the type of work he may be expected to perform and by instilling him with the necessity to be safety-minded. The course of instruction has to be easily assimilable and of relatively short duration so that the maximum return in effective work may be obtained during the limited service contract of the worker.

Fanakalo is the language medium. It is the *lingua franca* of the gold mines and may be described as an auxiliary language borne of the necessity of finding a common means of making Native mineworkers, with a limited education and speaking many different dialects, understand their tasks.

Quite a number of new recruits understand Fanakalo before they start the course and the others soon appreciate that it is necessary to learn this new language to become a successful worker. It is easy to learn and the majority quickly become proficient. The remainder are given additional instruction to bring them up to the necessary standard before leaving the training centre.

Safety lectures are given with the aid of posters, the names and usefulness of protective clothing used underground are taught, and the dangers to avoid in underground work are explained.

Two days are devoted to tools and equipment used in pipe and track work and then a day is spent in the stope and development end where the new recruit is given his first glimpse of underground conditions. Simple technical terms are explained as well as the names and uses of the tools used underground.

#### SELECTION AND TRAINING OF BOSS BOYS

Boss Boys are, in effect, foreman Native workers serving as intermediaries between European gangers and Native workmen. They assist the Europeans in the supervision of gangs under their charge as well as advising and instructing individual Native workers in underground duties.

Prospective Boss Boys may be nominated by a mine

official or aspirants may make application to attend a training course.

All learner Boss Boys are experienced underground workers and must be qualified in first aid before attending a course of about three weeks' duration. On the course a student is taught how to supervise a gang and is given detailed instruction in each of the individual phases of work carried out by the Native mineworker during a normal shift. To assist in this instruction films are used to illustrate the correct methods to be used in preparing for the shift, making the working place safe, watering down and cleaning the broken rock and supporting, drilling and blasting techniques. In addition he is taught air, water and ventilation pipe work and the laying of tracks for transportation purposes.

At the end of the course a practical examination is conducted by senior underground officials. In the event of a learner Boss Boy failing to obtain the required pass mark he is, at the discretion of the examining board, given a further course of training or returned to his gang as an ordinary worker.

Successful candidates are presented with their badges of rank and certificates by the Manager of the mine after the examination. Other senior officials attend this function which is accorded some prominence in order to impress on the new Boss Boys the importance and responsible nature of their work.

Boss Boys returning to a mine after a period of absence are given a short refresher course lasting about a week. There are five grades of Boss Boys and upgrading courses are also held at the training centre.

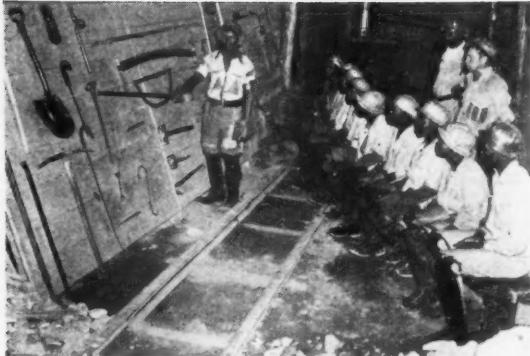
#### EUROPEAN TRAINING

The training centre at Venterspost is also utilized for the training of some European mineworkers. The purpose of training new and sometimes experienced European day's pay recruits is mainly to familiarize them with the standard methods applicable to the particular mine and to which they must adhere during their work underground. If they are unacquainted with Fanakalo they are taught to converse in this language. In the case of persons engaged for shaft work the period spent at the centre allows them to learn the code of signals for shaft operation required by mining regulations.

The European miner is not a mine official but, nevertheless, he is a supervisor in so far as he has charge of African



A group of new recruits being shown the danger of explosives. A clay hand attached to a metal pipe has just been blown off the dummy



**Introduction in the use and names of the tools recruits will use in underground work**

workers. The techniques of supervision, therefore, apply equally to him as to any other class of overseer and, accordingly, he is instructed in the basic principles of supervision. Job instruction, job relations, job methods and improvements are discussed, as well as other relative subjects, in order to dovetail their work into the broader sphere of mine administration.

#### COURSE FOR SUPERVISORS

There is also a supervisor's course for Shift Bosses at which training is given in mining technique, supervision and company policy, and the responsibilities and functions of the Shift Boss are clearly defined. This course is conducted by the Training Officer and is supplemented by talks on various phases of mining and administration by the underground managers. The course for European miners and for Shift Bosses are opened and terminated with talks by the Manager.

At the Vinterspost Mine 850 European and 6,000 Natives are employed in occupations on the surface and underground. During a 12 month period on this property approximately 5,000 Native underground employees attend the course for new recruits and 500 attend Boss Boy courses and training in pipe and track work. Approximately 500 European underground workers also attend courses at this centre.

In visiting training centres such as that established at Vinterspost one is impressed by the enthusiasm of the instructors and students alike.



**Learner Boss Boys being taught to tell the time**

## Uranium Strides On

President Eisenhower's announcement sanctioning the lease or sale of 40,000 kg. of Uranium 235 (more than 39 tons) for the peaceful development of atomic energy at home and abroad has been warmly welcomed throughout the free world. It is estimated that about 2,000,000 tons of uranium ore has to be refined to produce approximately 50 tons of U235. Theoretically this represents an electric power capacity of about 4,000,000 kW. The view is held in some quarters that President Eisenhower's action probably means broadening the U.S. Government programme for uranium ores and its extension beyond 1962. The release of such a large quantity of uranium 235 should stimulate nuclear engineering developments for peaceful uses in many nations, including the smaller ones.

Britain had previously announced her intention of contributing enriched Uranium 235 to the International Atomic Energy Authority. Mr. R. A. Butler, Lord Privy Seal, recently pointed out that the limited supplies of enriched uranium had to be shared between defence and civil needs, but added that some of the civil share would be reserved to meet the requirements of British firms which contracted to build nuclear reactors abroad.

#### THE PRINCIPAL PRODUCERS

Meanwhile rapid progress continues to be made in all the principal producing countries. Canada's policy on the export of uranium awaits the outcome of the current discussion in Washington on drafting a statute for an international atomic energy agency, but it has been officially stated that exports will cover only uranium considered surplus to Canada's requirements and commitments entered into with the U.S. Atomic Energy Authority. The Canadian Government has extended the deadline for starting uranium production, which was put forward from April 1, 1957, to September 30, 1957, because it had become evident that certain properties could not meet the original date.

Crown Corporation Eldorado Mining recently placed a \$44,900,000 buying order with Lorado Uranium Mines, whose property is situated in the Beaverlodge area of Northern Saskatchewan, covering the period March, 1957, to March, 1962. Lorado will build a custom mill, which will serve several uranium companies in the Beaverlodge area. Gunnar Mines Ltd., of Uranium City, Saskatchewan, completed a 1,250 ton capacity mill in August last year and delivered their first shipment of concentrates the following month, becoming, after Eldorado's Port Radium and Beaverlodge operations, the third major uranium producer in Canada.

Proposals for selling substantial quantities of commercially produced Australian uranium on the export market were referred to at the opening session of the Federal Parliament in February this year. This announcement was followed by the news that the U.K. Atomic Energy Authority is to purchase uranium oxide valued at more than £A40,000,000 from the Mary Kathleen Leases near Mount Isa in North-West Queensland. The Commonwealth Government has approved a contract to this effect between the U.K. Authority and Mary Kathleen Uranium. Rio Tinto (Australia), a subsidiary of Rio Tinto, of London, is the major shareholder in Mary Kathleen Uranium and holds a major interest, with Australasian Oil Exploration, in the vast Mary Kathleen deposits. Proving operations at the Mary Kathleen lease have already cost Rio Tinto well over £A300,000 and many millions of pounds will be spent on development before uranium oxide is produced.

In the first 11 months of 1955 the Union of South Africa's uranium and thorium exports were valued at over £26,000,000—more than double the amount for the corresponding period in 1956.

# Role of Mineral Resources in Expanding World Steel Production

(From Our Iron and Steel Correspondent)

One of the outstanding features of Mr. Khrushchev's outline of the re-orientation of Russia's political and economic policy was his emphasis upon the progressive development of the heavy industries. In the production of iron, steel, aluminium, copper, and coal, the Soviet Union, he said, had long out-distanced Britain, France and Germany, and was "catching up" with the United States. The truth is that although Russia is now producing rather more steel than Germany and the U.K. combined the *per capita* output is very much less and merely to keep pace with the rapid expansion elsewhere steel production in the Soviet Union will have to embark upon a development programme of immense magnitude.

## OUTPUT IN EUROPE

Here are the statistics of the respective outputs of Europe's "big four" in the year 1955:

- (1) Soviet Union 45,200,000 tons—an increase of 11 per cent.
- (2) West Germany 21,335,000 tons—an increase of 22 per cent.
- (3) U.K. 20,118,000 tons—an increase of 7 per cent.
- (4) France 12,583,000 tons—an increase of 18 per cent.

The statistics of world steel production are not yet complete, but a semi-official estimate is that the final aggregate was in the region of 260,000,000 tons, an increase of 20 per cent over the figure for 1954. In ten years the annual output of steel has been more than doubled and by 1960 capacity is expected to rise by a further 70,000,000 tons to 330,000,000 tons.

In every major steel producing country throughout the world, estimates of future demand since the world war ended, have been greatly exceeded. The call for steel has risen far more rapidly than planned production and capital investment programmes are being hastily revised.

Formidable capital costs seem to be no deterrent. Last month, new records of production were attained by U.S. steel plants, and in the belief that the best is yet to be the industry has embarked upon a three year development plan to increase capacity by a further 15,000,000 tons at a capital cost of 1.2 billion dollars.

At the moment development plans in the U.K. and in Western Europe are less clearly defined. The British programme is based upon an annual increase of a million tons in the production of steel during each of the next three years; German steel interests forecast the attainment of a crude steel output of 23,000,000 tons in the current year, and France has not as yet gone further than the pronouncement that the record output of 1955 was "inadequate".

## POTENTIALS OF INDIA

Much interest has recently been focused upon India's long-term plans to attain self-sufficiency in steel production. Admittedly it is a distant goal. India's total output this year is not expected to show a material advance on the 1,200,000 tons manufactured in 1955. This is so far below the needs of the new Republic that the Iron and Steel Controller has already placed orders abroad for the supply of 700,000 tons of finished steel and it is believed that a further 400,000 tons will be imported by private companies.

India, it is claimed, produces the cheapest steel in the world, but until the new plants at Rourkala, Bhilai and Durgapur are completed and the existing plants at Tatanagar, Burnpur and Bhadravati finish their expansion programmes the country will have to depend upon external sources for the supply of its increased requirements.

By 1959, however, it is expected that capacity will have been raised to 4,500,000 tons. Two years later completion of the second five year plan promises an output of 6,000,000 tons and the Government is reported to be considering a third five year plan with a target of 18,000,000 tons per annum.

Whether a target of such dimensions is economically justifiable or physically attainable is a matter for the Indian authorities alone to determine, but it may be observed that the industry has the advantage of immense mineral resources and cheap labour, which conceivably might enable it to become a formidable competitor in the world markets and certainly justify the national aspiration to seek emancipation from present dependence on imported supplies of steel. Meanwhile Britain, Germany, Russia and Japan are all assisting in the completion of the new plants and a British firm (Simon Carves) has just booked a £1,750,000 contract for the reconstruction of two large batteries of coke ovens and the building of 18 new ovens at the Tata steel works at Jamshedpur.

## NEED FOR RAW MATERIALS

All these spectacular plans for the further expansion of steel production in both hemispheres are obviously contingent upon a vast increase in the provision of raw materials—coal and iron ore. Both in this country and in Western Europe coal supplies are notoriously short and although the use of hard fuel is still indispensable in modern blast furnace practice, the transition to the use of gas and oil firing for the steel furnaces has been accelerated.

In regard to ore supplies the position may be described as hopeful. From a total output from the French mines of 50,000,000 tons last year, 13,250,000 tons were provided for export; both Sweden and Norway have embarked upon plans to achieve considerable increases in output and higher yields have been obtained from North and West African ore fields.

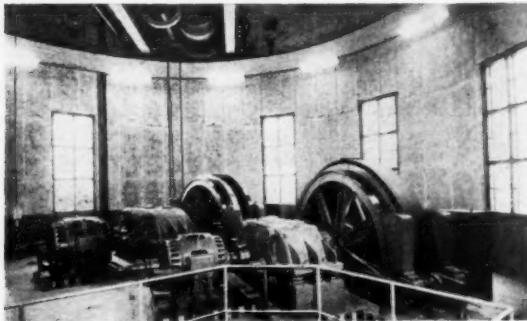
But the most impressive developments in iron ore production are in Canada. Strategically situated from the transportation standpoint the high grade mines at Steep Rock and Labrador have already made a timely contribution to the needs of the United States and in a lesser degree to British requirements. Last year's output of 16,500,000 tons more than doubled that of the previous year and Canada's production this year is expected to reach 20,000,000 tons. It is probably not excessively optimistic to forecast that Canada will become the principal external supply centre for the American steel industry.

The field of exploration—and discovery—is however widening, and from Southern America comes the news that new and extensive deposits have been discovered in close proximity to the site of Columbia's steel plant at Acerias Paz del Rio. According to preliminary reports there are at least 75,000,000 tons of 45-50 per cent iron ore which can be extracted by opencast working.

# Mine Hoists with Three-phase Induction Motors for Automatic Hoisting at Outokumpu

The most modern mine installation in Finland is the cast-concrete headframe of the Keretti shaft at Outokumpu, where an ore hoist and service hoist, manufactured by Allmanna Svenska Electrika Aktiebolaget (ASEA), provide an automatic hoisting system in which the net load is weighed hydraulically. The following article, condensed from *Asea Journal*, Vol. 28, describes the Outokumpu installation. An interesting feature is that this service hoist is remotely controlled from the discharge station for the ore hoist.

The round superstructure at the top of the Keretti shaft headframe at Outokumpu is 315 ft. high and contains an ore hoist and a service hoist of ASEA manufacture, both designed as friction drive hoists with two ropes and driven by three-phase induction motors. The hoists were taken into service in the autumn of 1954.



The hoisting room

The ore hoist is double hoisting in operation, with bottom discharge skip to net load of 5.5 tons. The shaft is 1,400 ft. deep. The hoisting speed is 1,400 f.p.m., and rope and pulley diameters are  $2 \times 1\frac{1}{4}$  in. and 10 ft. respectively. The driving motor is a 670 h.p., 750 r.p.m., 3,000 v., 50 c/s unit. The service hoist, on the other hand, is single hoisting with cage and counterweight to a net load of 2.6 tons—on occasion increased to 5.5 tons. This shaft is 1,400 ft. deep and hoisting speed is 1,400 f.p.m. Rope and pulley diameters likewise are identical to those of the ore hoist, as is motor rating save for the fact that the service hoist motor is of 250 h.p.

The service hoist is remotely controlled from the operating room next to the discharge station for the ore hoist. The ore hoist works completely automatically. In operation, the crushed ore is fed from large bins via two belt conveyors to the measuring pockets which, after automatically weighing the quantity of ore fed into them, load the skips automatically.

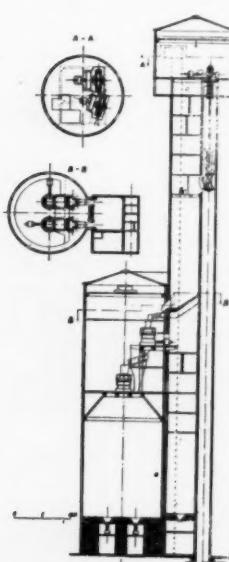
In the principle by which the automatic measuring pocket operates, the lower part of the pocket is shaped like a piston and rests on a cushion of oil in the cylinder frame (1). The oil is obtained

from an IMO screw pump (4) which is automatically started up by the limit switch (21) when the measuring pocket has subsided too far because of leakage. When the pocket has again been pumped up to its highest position, the pump is stopped by means of the limit switch (22). The oil pressure in the cylinder changes in proportion to the weight of the ore load and is approximately 140 lb. p.s.i. when the pocket is empty and 280 lb. p.s.i. when it is full.

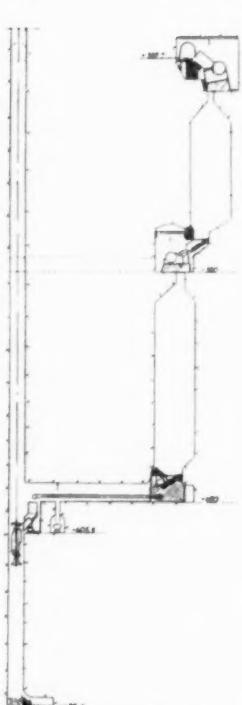
A pressure relay (10) stops the feeder to the conveyor a short time before the pressure relay (11) stops the belt, this taking place when the correct weight of ore has been fed down into the pocket. When the skip has stopped in the discharge position the shaft limit switch (27) closes. This, in combination with the pressure relay (11) gives the opening impulse to the discharge gate of the measuring pocket. As soon as the measuring pocket has tipped to the skip, the discharge gate receives a closing impulse, the gate closes and the hoist and ancillary equipments begin movement.

The hoist motor is connected to the supply network via the reversing contactor, with a great deal of the secondary resistance connected in, and runs at creeping speed until the discharge gate at the upper skip has been closed. At that point the contactor-operated secondary rheostat is successively short-circuited by means of current-limiting relays, and the motor accelerates freely up to full speed.

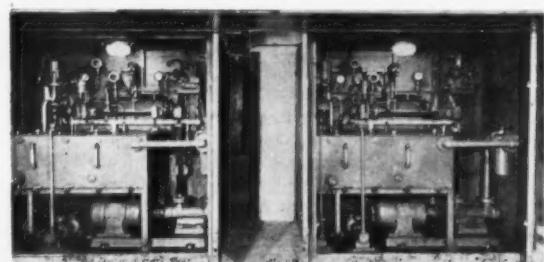
As soon as the retardation impulse is given, the entire secondary rheostat is connected into the rotor circuit, whereupon the driving torque of the motor is reduced to an insig-



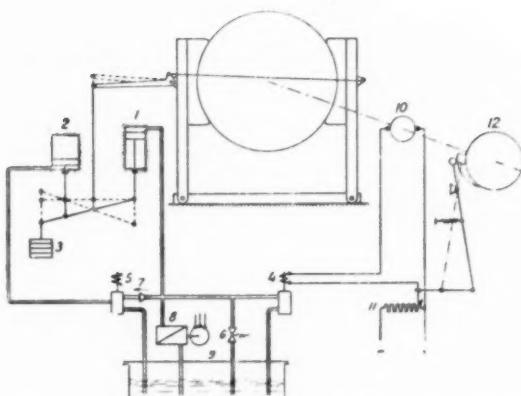
Section of the headframe



Loading station for the ore hoist



The two cabinets with the hydro-electric equipment for operating the hoist brakes



## Hydraulic brake system for automatically operated mine hoist with three-phase induction motor

nificant value, and the hoist is retarded to creeping speed by the load itself. As soon as creeping speed has been reached, a part of the secondary rheostat is again short-circuited, whereupon the motor torque is increased to about 130 per cent, which is sufficient to haul up the loaded skip into the discharge position. During this part of the retardation period, the mechanical brake is applied lightly. In the discharge position, the motor is stopped automatically.

## AUTOMATIC SPEED ADJUSTMENT

The control principle is that the actual hoist speed is represented by the voltage from a tachometer generator which is connected to the hoist motor, while the desired hoist speed at each point in the shaft is represented by the voltage from a potentiometer rheostat driven from the hoist so that this reference voltage is dependent on the position of the skip in the shaft.

The difference between the voltage of the tachometer generator and that of the potentiometer actuates a hypersensitive electro-hydraulic control device which regulates the pressure of the operating brake via an oil valve. The oil is obtained from an IMO pump which ensures full pressure in the operating brake when the regulating valve is closed, and zero brake pressure when the valve is open. During the period of acceleration and full speed, the brake is entirely free, but as soon as the retardation impulse is given, the reference voltage of the potentiometer is changed in accordance with the desired retardation. The control gear thereupon regulates the pressure of the operating brake, to correct for possible deviations from the previously determined speed-distance curve.

## ELECTRO-HYDRAULIC EQUIPMENT

Two sheet-steel cabinets contain the electro-hydraulic equipment for operating the brakes to the service hoist and the ore hoist. Retardation impulses are obtained from a level selector which is driven from the hoist and consists of a number of magnet-operated contacts. Each magnet contact is operated only when two rotating members carrying permanent magnets occupy a certain position when passing the contact. With the two members rotating at slightly different speeds, there is only one point where they coincide to actuate the contact, in spite of the fact that the magnets pass this contact many times during one winding operation. The magnet contacts are designed for quick breaking and since, in addition, the magnets pass these contacts at the greatest possible speed, contact is made with the greatest possible precision. Since the contacts are not actuated by any mechanical device, they have a long ser-

vice life, and, further, the design permits of very rapid and simple adjustment of the magnets.

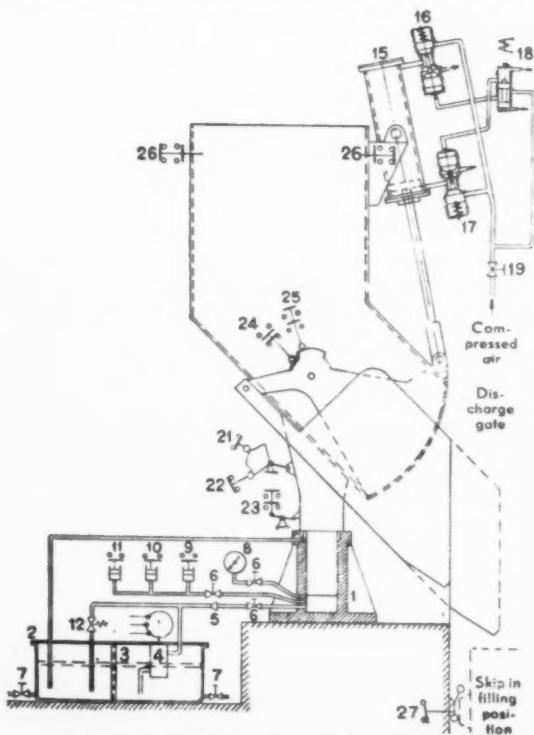
In order to compensate for any rope creepage or slip, the level selector is fitted with an automatic synchronizing device. The synchronizing of this control device with the position of the skip in the shaft takes place each time the skip stops in the discharge position. When the control device is synchronized, both the contacts are open. In the case of creepage or slip, either the one contact or the other will be closed, depending upon whether the control device is advanced or retarded relative to the position of the skip in the shaft. The closed contact connects in the synchronizing motor in such a direction that it drives, via different gear, the control device back to the synchronizing position in which both the contacts are open.

## SKIP HOIST CONTROL

The control system is the same as for the skip hoist, although operation is manual by remote control, that is to say, without any mechanical connection between the hoist and the control levers.

Thanks to the practical design of the electrical equipment for the two hoists, only limited space is occupied, while the time and cost of installation have been reduced to the minimum.

The primary cables go from the motor circuit-breaker of the hoist motor to a reversing-contactor cabinet, and from there to the motor. Cables run from the sliprings of the motor to a secondary rheostat in the lower part of which long-life contactors are arranged on draw-out trucks, while the upper parts contain the resistor grids themselves. Thus, as the heated air rises, it does not come into contact with the contactors. The resistors and contactors are connected in the workshop by means of copper bars. This arrangement enables the many heavy cables, required when the resistors and secondary contactors are set up separately, to be dispensed with, thus also reducing installation work.



### Diagrammatic sketch of measuring pocket with hydraulic scales

## TECHNICAL BRIEFS

### Metal Extraction Process

A new process using extremely high temperatures and which is expected to increase the U.S. supply of critical metals, has been described in New York. Doctor Samuel Korman, an industrial research scientist, states that in the new process, ore is subjected to a high intensity electric arc and reaches temperatures of 13,000 to 18,000 degrees Fahrenheit. The ore vapourises and the desired metals are separated from the vapours by conventional chemical methods. Doctor Korman suggests that the process could be applied to ores yielding poorly to other extraction methods.

### Protective Nickel Alloy Coating

A new nickel alloy, claimed to be cheap and applied like paint, has been developed by New York Testing Laboratory Incorporated. It is said to give to ordinary iron the corrosion-resistant properties of some stainless steels. According to the inventor, the new material will not only conserve scarce nickel supplies but will actually provide a better preservative than plating. Coatings need only be 0.001 in. thick but can be built up to 0.25 in. if required.

Called Niphos, the coating is applied to the surface by painting on and is then alloyed to the metal itself by the application of heat in a reducing atmosphere. This is made possible by the presence of phosphorous in the alloy.

### New U.S. Spun Aluminium Processes

It has been claimed that savings as high as 33 per cent for many tubular products can be effected in the manufacture of automotive refrigerations and air conditioning equipment by exclusive spun aluminium processes developed by Whiting Tubular Products Incorporated, United States.

The new and patented processes have been described as similar to those for spinning copper. They are, however, stated to compensate for the different characteristics of the two metals, making possible for the first time the spinning of aluminium in high volume runs both regular and in offset. The spun aluminium process makes possible the substitution of the cheaper metal.

By use of the new process, aluminium flows into position instead of being abruptly displaced. The new method also enables spun parts to be held to very close tolerances without costly machining where this is necessary for the precision performance of an operating mechanism. The simple method of spinning aluminium in offset was a natural evolution after its engineers solved the original spinning problem.

### Cationic and Nonionic Chemicals in U.K.

The first plant in Europe to produce the Armour range of cationic and nonionic chemicals has started operation. The plant, designed and constructed in England to plans of Armour and Company, Chicago, is operated by Hess Products. Amongst the chemicals produced there are the Armeens (primary, secondary, and tertiary aliphatic amines) used in the textile and petroleum industries, for pigment treatment, and in surface coatings, for inhibition of corrosion including boiler water systems, in the preparation of quaternary compounds, and for other purposes. The Armacs (water soluble amines) are used as flotation agents for potash, phosphate, titanium, zinc, lead, and other ores, and wherever cationic emulsifiers and solubilizers are required. The Duomeens (aliphatic diamines) are used as anti-stripping agents in applications of bitumen and tar, and in the metal working industry, amongst other applications. Arquads (water or oil soluble quaternaries) are used as anti-statics for resins and fabrics.

In the catalyst reactors fatty acids are brought into contact with anhydrous ammonia. The water formed during the reaction is removed. The resultant nitrile is then hydrogenated in specially designed converters to give a primary or secondary amine. The primary amines form the basis for many of the other products, such as Duomeens RNH<sub>2</sub>, C<sub>6</sub>H<sub>5</sub>NH<sub>2</sub>; tertiary amines R(CH<sub>3</sub>)<sub>2</sub>N; and quaternary amine compounds.

## REVIEWS

### Industrial Review and Mining Year Book of Australia, 1955.

Published by Paterson Brookes Pty. Ltd. Pp. 292 with illustrations and advertisements.

Anyone who has maintained an interest in the mining industry of Australia throughout the past year will be well aware that 1955 was a period of contrasts. Base metal and non-ferrous mines enjoyed high prices and keen demand, generally earning profits which were a record or a near-record.

The work under notice presents an admirable cross-section of the Australian mining industry in 1955, covering all aspects of mining and general industry, and presenting its facts in well illustrated articles. The whole is an attractive publication that enhances the reputation established by its predecessors.

In so far as that portion of the book dealing with mining is concerned, articles consider in turn the base metals, silver, gold and uranium as well as oil. The general trend is one of optimism while the interest shown in the country's beach sands potential is revealed by the developments taking place. A section of the volume deals with secondary industries. A valuable book.

### Yearbook of the United Nations, 1954.

Published by Department of Public Information, United Nations. Pp. 656 with index. Price 70s. Available from H.M. Stationery Office.

The *Yearbook of the United Nations, 1954*, the eighth such annual permanent reference book on the work of the U.N. and its specialized agencies, provides an impartial and complete review of the work of the various U.N. organs for the year covered, as well as a summary of the debates and texts of adopted resolutions. It is a volume which will be of permanent reference value to all concerned with international affairs.

Atomic energy, disarmament, the world economic situation, developments in trust and non-self-governing territories, narcotics, and the continental shelf are but a few of the subjects in the main fields of U.N. endeavour that are dealt with in the current volume. Besides the documented account of the year's accomplishments, appendices bring up to date such facts as a roster of the member states of the U.N., with their area, population and date of entry into the Organization; a summary of the structure of the U.N., showing the principal and subsidiary organs with their membership in 1954; the delegations to the General Assembly and the three Councils; and a list of the information centres of the U.N.

Part One of the *Yearbook* contains a documented account of the U.N. work in a multitude of activities, while Part Two, as in previous years, contains a survey of the work of each of the U.N. specialized agencies. Unlike previous editions, the current *Yearbook* includes texts and documentary citations in separate notes following each main subject, rather than incorporating these texts in the story of events. The work is available in the United Kingdom from H.M. Stationery Office.

### Die Bergwirtschaft Der Erde.

by Prof. Ferdinand Friedensburg. 5th Edition. Published by Ferdinand Enke, Stuttgart-W., Germany. Pp. 562. Price DM 69. Published in German.

This book first appeared in 1937, but the edition under notice has been completely rewritten. It comprises as up-to-date an account as is possible of the earth's mineral resources and mining development of each country, in alphabetical order. A table is produced for each country, giving production figures for 1913, 1938, 1950, 1951, 1952, 1953 and 1954, and also showing the individual country's production in terms of percentage of world production, and the country's domestic consumption of each metal.

Numerous maps showing deposits are supplied, and also, in the case of a country having a considerable mining industry of a particular metal or mineral, statistical tables are given, showing production from the various districts. Apart from much other useful information, a bibliographical list is appended at the end of each chapter, giving a list of important books, or articles published all over the world in periodicals, on that country's mining industry.

## MINING MISCELLANY

In furtherance of their industrial development programme, Camp Bird Ltd., have acquired a majority of the Ordinary Shares in the Pulsometer Engineering Co. Ltd.

The Messina (Tvl.) Development Co. has recently completed an extensive drilling programme on Vukwe Mountain, 15 miles by road from Ngesi on the new Lourenco Marques-Bannockburn railway line, and has suspended operations pending the findings on possible iron deposits in the mountain.

A major rockburst occurred on February 11 in the Biddick Shaft of the Champion Reef Mine, Kolar Goldfield. There were no casualties, but very serious damage resulted to shaft lining between 95 and 98 levels and to equipment below these levels. All operations have been suspended in this section and production is likely to be substantially and permanently reduced.

A uranium strike of major proportions in the Rundberg mine, Nevada, has been confirmed by Apex Uranium Inc., reports *The Mining Record*. The company is satisfied that the discovery on the property is primary ore. Exhaustive assays and tests indicate that it is either the first pitchblende vein discovered in Nevada, or a vein of some unique mineral not previously identified, but having qualities similar to those of pitchblende. The full extent of the mineralisation is not yet known, but drilling and tunnelling indicate that it covers a wide area. Bodies of ore already covered by the development have proved exceptionally rich.

Rye Park Scheelite NL and Tungsten Consolidated Ltd. have granted a six weeks' option on their beach sand property in Queensland to Standard Ores and Alloys Corporation of New York. The option includes the right to purchase the property outright for £A200,000, or to buy a half interest for £A100,000, the U.S. concern bearing the cost of equipping the property equally with the vendors. The Directors of the Australian companies stated that borings at Tewantin, 100 miles north of Brisbane, had shown the existence of about 41,000 tons of rutile and 2,500 tons of monazite.

Exploration Projects Inc. has entered into an agreement with the Virginia Mining Corporation for the development of prospective copper, lead, zinc properties situated 60 miles from Richmond, Virginia, which are owned by the latter company. Exploration Projects is a private exploration and development organization. The participants are the American Metal Company, the Consolidated Copper Mines Company and other American interests, together with a Canadian group including Ventures Limited, O'Brian Mines Ltd., Wright-Hargraves, Preston East Dome and Selection Trust Ltd.

The National Lead Company is undertaking a 25 per cent expansion in the capacity of its ilmenite mine and mill at Tahawus, New York, already the largest operation of its kind in the world. The expansion will include the addition of a fifth production line in the mill, where the ore is concentrated for shipment to the firm's titanium pigment plants. Another shift will be added to the mining force. The announcement of this expansion programme follows the discovery by National Lead of large deposits of titanium minerals on company-owned lands in the area. Indications are that the orebody contains over 100,000,000 tons.

A new aluminium sheet and foil plant built by Reynolds Philippine Corporation, Inc., near Manila, Philippine Islands, is now in operation. The Corporation is controlled by Reynolds International, Inc., a wholly-owned subsidiary of Reynolds Metals, who own 51 per cent of the stock.

### PERSONAL

The death has been announced of Mr. John McNeil, suddenly, in Bombay on February 21. Mr. McNeil was the manager of the Mond Nickel Company's technical office in Bombay.

Mr. H. R. Holmes resigned his appointment as managing director of the Central Provinces Manganese Ore Company Limited on February 29, 1956. He retains his appointment as chairman. Mr. A. Linton and Mr. W. A. Hardy have become joint managing directors. Mr. A. Linton resigned his appointment as secretary and the vacancy has been filled by Mr. T. D. de Deney.

Mr. J. A. Griffiths has been appointed a director of Gold and Base Metal Mines of Nigeria.

Mr. Myron W. Rhoten has been appointed managing director of Allis-Chalmers Great Britain Ltd., of Essendine, Lincs., in succession to Mr. E. J. Mercer who was recently appointed general manager of the tractor group's construction machinery division in the U.S.A.

Mr. W. E. Sells has been appointed Nigerian District Manager of the Bank of British West Africa Limited.

Mr. G. H. Ross has been appointed manager of the Scottish branch office of Cantie Switches Limited.

The Minister of Fuel and Power, under the provisions of Section 82 of the Coal Mines Act, 1911, has directed Mr. T. A. Jones, O.B.E., H.M. Divisional Inspector of Mines for the South Western Division, to make a special report on the explosion at Blaenbirwaun Mine, Carmarthenshire, on September 6, 1955. The report will be published.

"Statistical Summary of the Mineral Industry (Production, Exports and Imports) 1949-54" is now available. Prepared by the Mineral Resources Division, Colonial Geological Surveys, it is obtainable from H.M.S.O. Price £1 7s. 6d. (By post £1 8s. 2½d.).

### CONTRACTS AND TENDERS

International Co-operation Administration (I.C.A.) Procurement for Spain. Requirements, three loading shovels compressed air operated, cradle type dumper and mechanical centering fixture for a 600 mm. track, loading capacity of 1 m<sup>3</sup> minimum. Buyer, Antracitas de Fabero, S.A., Avenida Jose Antonio, 1, Madrid, Spain. Procurement Authorization No.: 52-470-00-4245. Closing date, 20/3/56. B.O.T. Ref. E.S.B./5711/56/I.C.A. Telephone enquiries to Chancery 4411, Extension 360.

#### India

TEN/18258. Sealed tenders are invited for the manufacture, supply and erection at Madras of open-cast mining equipment. Sealed tenders will be opened on 2/5/56—4/6/56. Further information from A. Srinivasan, General Superintendent, Lignite Investigations, Neyveli.

I.C.I. recently announced the following future authorizations:

Korea	Contract Period	Delivery Date	Amount (in U.S. dollars)
Bituminous Coal (PIO/C No. 89-33-240-5-00019)	.....	30/6/56	3,600,000
Bituminous Coal (PA No. 89-610-99-A6-6266)	27/1/56-30/3/56	30/6/56	3,200,000
Laos			
Non-metallic minerals (except petroleum) and non-metallic mineral products (PA No. 39-99-A6-6202)	31/1/56-30/6/56	30/6/57	1,000,000
B.O.T. Ref. E.S.B./5233/56/I.C.A.			

Firm requests have been received by I.C.I. for financing the following purchases:

Korea	amended value
Non-metallic mineral's: sulphur and asbestos	\$850,000
Miscellaneous non-ferrous metals; mercury	\$5,000
Zinc and lime base alloys	\$400,000
Aluminium and aluminium base alloys	\$640,000
Brass and bronze and their products	\$56,000
Nickel and nickel base alloys and products	\$62,500
Tin and tin base alloys and products	\$512,000
Zinc and zinc base alloys and zinc products	\$512,000
Miscellaneous industrial non-ferrous metals and their products	\$49,500
Non-metallic minerals (fused alumina and fused silicon carbide)	\$400,000

B.O.T. Ref. E.S.B./4279/56/I.C.A.

Telephone enquiries to Chancery 4411, Extension 360.

*This information is supplied by the Special Register Information Service of the Board of Trade, Laco House, Theobalds Road, London, W.C.1.*

## METALS, MINERALS AND ALLOYS

**COPPER.**—Copper has remained in strong demand on both sides of the Atlantic in anticipation of further price increases. In the United States March smelter copper is quoted at 54 c. per lb. but there is little metal to be had. April is around 54 c. and May at 53½ c. The big producers are still quoting 46 c. but the feeling that the price will have to be raised still further is very strong and not shaken by the later relapse in London of all base metals. At 48 c. the big producers would be roughly in line with the new R.S.T. price; but there is not much to be said for an increase of this magnitude since it would still leave a gap of 6 c. between the official and the smelter quotation. Nevertheless, the recent increases have been based on sentiment rather than a changed demand-supply situation and must be suspect.

The main reason for this new outburst of strength—in London copper changed hands at the new record of £432 a ton—was the uncertainty of the outlook in the Middle East following on the dismissal of General Glubb from the Arab Legion by the King of Jordan. The consequence was to re-open the gap between the American producer's price and the L.M.E. quotation; there is, therefore, every reason to expect Chilean copper to continue to come to Europe. Meanwhile, demand in Britain remains good. The credit squeeze is causing some embarrassment to the motor and radio industry, but the electrical and heavy electrical industries are as busy as ever. The motor industry is not a great copper consumer and the radio industry has got good defence and industrial contracts. The squeeze is going to work patchily and the bigger British consumers of copper are unlikely to be hit hard for some time.

The Chilean Ministry of Mining has announced that it will float loans in Europe and the United States for the financing of a copper smelter and electrolytic refinery near Valparaiso. Chilean copper output in 1955 has been put at 391,246 tons against 363,655 in 1954.

The 204 European daily paid workers at Bancroft have ended their strike and have agreed to take their complaint to a conciliation board.

**LEAD.**—Lead was an active market in New York on the basis of 16 c. per lb. with demand becoming noticeably stronger towards the middle of the week. The news from the Middle East, where trouble would threaten the shipping lanes from Australia, and the possibility that the dock strike would break out again in Australia itself, both helped to make lead firmer in London. Such firmness immediately raises the possibility that Mexican lead will start to flow to London again thus forcing a new price rise in New York. For the time being lead is adequate in New York but it would not require the diversion of much metal to effect an increase on 16 c. The relapse in London on Wednesday brought some relief.

American imports of refined lead in 1955 were down to 264,149 tons against 276,286 in 1954. But the jump of lead imported in ore and matte more than offset this fall. Refined imports from Mexico were up from 68,695 tons in 1954 to 93,368 tons in 1955; but imports from Canada, Australia and Yugoslavia were all down.

**TIN.**—Tin has continued to fluctuate violently in price as it has come under conflicting influences. The metal, which had soared when a strike in Malaya seemed unavoidable, dropped sharply as the news from Malaya improved. After a first meeting between the employers and the union the employers announced a fair measure of agreement on a number of issues. A second meeting will be held on March 12. Whatever the final outcome the atmosphere is certainly a good deal calmer.

Meanwhile the tense situation in the Middle East has given tin fresh strength, partly from fear that any outbreak of fighting in the area might close the Suez Canal and add to the premium on nearby supplies, and partly because the news itself put sterling under pressure and this made tin a more attractive holding. It is quite possible that the affairs in the Middle East are coming to a head in which case tin might yet go to much greater heights; but even if this is not so it is probable that the metal will continue to be erratic in value. Meanwhile, with spot supplies short on both sides of the Atlantic, demand remains keen.

Col. Lee, who will take over the Malayan Finance Ministry shortly, has said that Malaya would "remain strictly within the sterling area and would abide by the decisions of the Commonwealth Finance Ministers Conference regarding policy on dollar spending". He said that the government would seek to diversify exports, develop ports and attract foreign capital. He also said that the Federation government would be op-

posed to the proposal of the Singapore labour front government that income tax be increased on the ground that it would discourage foreign investment.

There is no further news of the Indonesian government's latest delay in depositing a deed of ratification of the I.T.A. But it is worth pointing out that a new Indonesian government must soon be formed to give effect to the recent elections. If by that time the instrument is not deposited it would be possible for the new government to regard itself as not bound by the decision if it felt so inclined.

**ZINC.**—Demand for zinc in the United States has been steady but not impressive in the past week and, unlike lead, the course of zinc prices in London has not been watched with concern. There are said to be ample supplies of prime western grade although the higher grades are not plentiful and there is no reason to look to any change in the present quotation of 13.50 c. per lb. East St. Louis.

American imports of zinc in all forms reached 686,979 tons in 1955 against 610,885 tons in 1954. Imports of ores and concentrates were up from 454,027 to 491,284 tons; imports of metal were up from 156,858 to 195,695 tons.

**ALUMINIUM.**—There are increasing indications that North American primary producers are considering additional expansion beyond the projects previously announced, which themselves provide for a total capacity of 2,181,000 tons within the U.S. and 952,000 tons for Canada. It is said that both Kaiser and Reynolds are interested in obtaining contracts for delivery of electric power from the St. Lawrence Seaway development when it is completed. Alcoa is reported to be engaged in an investigation relating to the construction of an additional reduction works of a possible 150,000 tons capacity. According to the *American Metal Market*, there are indications that action in this direction will be taken this year, although the company is not yet ready for a decision.

Construction work is to begin immediately on Reynolds' \$30,000,000 programme to expand its Texas alumina production facilities by 185,000 tons a year in support of the company's previously announced plans for increasing primary aluminium capacity. Reynolds also plans to spend nearly \$13,000,000 on the expansion of sheet mill facilities.

Mr. R. S. Reynolds, president of the Reynolds Metal Company, foresees another year of progress and growth, but points out that availability of the metal continues to be a limiting factor. In this connection it is noteworthy that the heavy and continuous demand for aluminium castings during most of last year left the U.S. castings industry with a comfortable backlog of orders, bookings for future delivery amounting to more than 61,500 tons—an increase of 24 per cent. Primary producers have been notified by ODM that the call issued in September, 1955, for the delivery to the Federal stockpile of 25,000 tons of aluminium has been reduced to 11,000 tons. This reduction, it was stated, has been made possible by expansions of aluminium capacity under way and planned. The 14,000 tons released can be made available for industrial use in the U.S. to alleviate the present shortage. Meanwhile more primary aluminium has been added to industry's supply line by the tapping of metal from the first of two new potlines which Alcoa has had under construction at its Rockdale (Texas) works. New pots have already been started up this year at the company's Point Comfort works, also in Texas.

Canadian exports of primary aluminium in December continued to reflect reduced smelter production during the last quarter as a result of inadequate power caused by water shortages. The preliminary estimate for exports in 1955 is 515,498 tons. This represents a 10 per cent increase over the 468,494 tons exported in 1954, but falls considerably short of the tonnage that had been anticipated.

Production of primary aluminium in West Germany during 1955 amounted to 137,000 tons compared with 129,000 tons in 1954. Output during the current year is expected to rise by a further 8,000 tons, but this increase is likely to be surpassed by the growing demand. Difficulty is anticipated in bridging the probable gap. Industrialists in Western Germany state that, outside existing long-term contracts with Canada and Norway, foreign material is being offered at as much as 30 per cent higher than the domestic price. In view of the present world scarcity, however, users are compelled to purchase the higher priced material to cover urgent needs. It is further reported that certain countries within the Soviet bloc are preparing to offer aluminium to the West.

**MOLYBDENUM.**—Despite the very large increase in production achieved by Climax Molybdenum early in 1954, when milling capacity was hoisted to 27,000 tons a day, Climax Molybdenum are temporarily unable to produce enough molybdenum to meet the current demand. Mr. Arthur Bunker, president of the company, predicts that sales for last year will exceed \$61,000,000 as against \$53,100,000 for 1954.

During 1955 Climax Molybdenum maintained ore production at the record high level of nearly 30,000 tons per day to keep pace with the requirements of industry and defence. A four-year expansion programme, costing \$34,000,000 and financed entirely with company funds has been completed, but it was recently announced that milling facilities were to be further expanded—an indication that demand was still increasing. The latest extension will take the form of a mill unit costing about \$750,000 and designed either to increase recovery of molybdenum disulphide concentrate by about 3 per cent with no increase in tonnage, or to increase production by about 2,000 tons per day on the present recovery basis. This project is expected to be completed towards the end of the current year and should bring about a significant improvement in the supply position.

The advent of a second large molybdenum producer is foreshadowed by the announcement that Anaconda will ask the Chilean Government to authorize an investment plan for installation of equipment to recover molybdenum from the copper ore at Chuquicamata.

The ores at Indio Muerto also contain molybdenum and in larger amounts than the Chuquicamata area. Mr. Roy H. Glover, president of Anaconda, has indicated that this molybdenum content will considerably increase the value of the mine production.

**QUICKSILVER.**—The market for quicksilver is weak and at present supplies are in excess of demand. Heavy shipments arrived in the U.K. in January, mainly from Italy and Mexico, totalling some 2,800 flasks. The price is quoted nominally at £86 10s. per flask.

**SELENIUM.**—Following the recent increase in price by leading U.S. producers, one U.K. seller of selenium at an allocated price has raised the quotation from 72s. to 112s. per lb. delivered. In view of the high levels being obtained in the open market for this scarce material, this upward adjustment in the quotation was by no means an unexpected development. Japanese metal is reported to be fetching around £17 per ton and Swedish around £15. On an average, the domestic price in the U.K. still remains lower than the Continental prices.

In the U.S. the Commerce Department has tightened up on exports of selenium materials and has announced that "special conditions will be imposed on shipments abroad until further notice". The new conditions, effective immediately, are necessary in order to reserve the limited quantity available for export to meet essential foreign needs. First consideration will be given to export licence applications covering shipments identified for military end uses. The remainder of the quantity available for export will be licensed for countries normally dependent upon the U.S. for a portion of their selenium requirements.

**GOLD.**—Mr. Philip Kelly, Minister of Mines for Ontario, has expressed the opinion that within a year the Federal Government will be minting gold coins for general circulation, resulting in a premium as high as 15 per cent on Canadian minted gold coins, which, in effect, will free the price from the "artificial" level of \$35 an oz. set by the U.S.

## The London Metal Market

(From Our Metal Exchange Correspondent)

Markets have been overshadowed by political developments which have resulted in higher prices but on the whole diminishing turnovers, the two main events being President Eisenhower's declaration of his willingness to stand again for the Presidency and the increasing unrest in the Near East. The former has given additional strength to that majority opinion in America which looks for the continuation of boom conditions throughout the year, whilst the latter has had the usual psychological effect of such happenings.

The price of copper on the London Metal Exchange has continued to reach new peaks, and with the non-producer market in America advancing to 54 c. per lb. the two prices are now practically on a parity, and, with the possibility that the American producers will once more raise their prices, a further small general upward movement would not be surprising; but it must be remembered that only a month ago the forward price was around the £380 per ton mark and that a rise at the rate of £40

a ton a month cannot be sustained. European demand is still patchy, but there have been signs that the hand-to-mouth policy has reached one of those stages where the majority have to buy to keep themselves going.

The tin market has settled down after its recent flurry, and although the backwardation is still large it is now more reasonable, and with the stock returns showing an increase on Monday it is to be hoped that more normal conditions will be established very soon. Most people consider that £800 per ton for tin is a reasonable price under present conditions, and with the experts differing on whether or not a large surplus will develop during the second half of this year it is expected that the general price level will remain fairly steady for some weeks to come. On Thursday morning the Eastern price was equivalent to £793½ per ton c.i.f. Europe.

Lead and zinc prices, apart from moving up in sympathy with copper, have been given an additional boost by renewed talks of trouble in the docks in Australia, and, should this materialize combined with the arrival of the period of reduced shipments due to the last strike, the prices of both metals may rise appreciably.

Closing prices and turnovers are given in the following table:—

	March 1 Buyers	March 1 Sellers	March 8 Buyers	March 8 Sellers
<b>Copper</b>				
Cash	£422	£423	£425	£426
Three months	£410	£411	£414	£415
Settlement		£423		£426
Week's turnover	6,525 tons		3,675 tons	
<b>Tin</b>				
Cash	£830	£835	£825	£820
Three months	£787½	£790	£785	£786
Settlement		£835		£830
Week's turnover	1,130 tons		635 tons	
<b>Lead</b>				
Current half month	£122	£122	£122	£122
Three months	£117½	£118	£118½	£118½
Week's turnover	9,075 tons		4,650 tons	
<b>Zinc</b>				
Current half month	£101½	£102	£102	£102½
Three months	£98½	£98½	£99	£99½
Week's turnover	4,025 tons		3,325 tons	

## OTHER LONDON PRICES — MARCH 8

### METALS

Aluminium, 99.5%, £179 per ton	Nickel, 99.5% (home trade £519 per ton)
Antimony—	
English (99%) delivered, 10 cwt. and over £210 per ton	Osmium, £24/27 oz. nom.
Crude (70%) £200 per ton	Osmiridium, nom.
Ore (60% basis) 23s. (d.) 24s. 6d. nom. per unit, c.i.f.	Palladium, £8 0s./£8 10s. o..
Bismuth	Platinum, U.K. and Empire Refined £34 0s. oz. Imported £39 0s./£41 0s. oz.
(min. 1 ton lots) 16s. lb. nom.	Rhodium, £40/£42
Cadmium 12s. 0d. lb.	Ruthenium, £16/£18 oz.
Chromium, 6s. 11d. lb.	Quicksilver, £86 10s. ex-warehouse
Cobalt, 21s. lb.	Selenium, 112s. nom. per lb.
Gold, 24s. 7½d.	Iridium, £29/£31 oz.
Iridium, £29/£31 oz.	Manganese Metal (96%—98%) £269 according to quantity
Magnesium, 2s. 4d. lb.	Silver, 79d. f.oz. spot and f.d.

### METALS

Bismuth .. .. ..	50% 7s. 3d. c.i.f.
	40% 6s. 3d. lb. c.i.f.
Chrome Ore—	
Rhodesian Metallurgical (semifriable) 48%	£15 2s. 6d. per ton c.i.f.
" Refractory 45%	£14 2s. 6d. per ton c.i.f.
" Smalls 42%	£12 2s. 6d. per ton c.i.f.
Magnesite, ground calcined ..	£28 0s./£30 0s. d/d
Magnesite, Raw (ground) ..	£21 0s./£22 0s. d/d
Molybdenite (85% basis) ..	8s. 2½d. nom. per lb. c.i.f.
Wolfram and Scheelite (65%) ..	267s. 0d./275s. 0d. c.i.f.
Tungsten Metal Powder ..	21s. 4d. nom. per lb. (home)
(98% Min. W.)	
Ferro-tungsten (80%—85%) ..	18s. 4d. nom. per lb. (home)
Carbide, 4-cwt. lots ..	£39 3s. 9d. d/d per ton
Ferro-manganese, home ..	£59 10s. 0d. per ton
Manganese Ore Indian Europe (46%—48%) basis 125s. freight ..	100d./102d. per unit c.i.f.
Manganese Ore (43%—45%) ..	95d./97d. per unit c.i.f.
Manganese Ore (38%—40%) ..	88d./90d. per unit
Brass Wire ..	3s. 9½d. per lb. basis
Brass Tubes, solid drawn ..	3s. 3½d. per lb. basis

## THE MINING MARKETS

(By Our Stock Exchange Correspondent)

The past week in the Stock Exchange began steadily, encouraged by the rise of \$61,000,000 in the February return. Against this favourable factor, it should be remembered that the balance of payments usually moves in favour of sterling in the early part of the year, and there was still an outstanding EPU deficit, 75 per cent of which must be settled in gold. There are signs that the deflationary policy is really beginning to bite and luxury industries like car manufacturers and radio producers have started working short time.

During the latter part of the week, the whole market was overshadowed by the Middle East crisis and this led to heavy selling of sterling overseas. The government successfully floated a short-dated five per cent Exchequer Loan 1957 especially designed to mop up surplus bank assets.

Kaffirs as a group failed to respond to the higher gold price brought about by the weakness of sterling. Investors both in London and in the Cape have stayed out of the market and a small trickle of selling lowered prices. Consolidated Mines Selection issued their annual report but this failed to stem the fall in price. There has been quiet demand for Consolidated Goldfields shares which at one time touched 60s. 3d.

Rand mines were featureless and generally lower, despite some interesting figures in the February returns. The position of many of the older mines has been causing comment. Profit margins are in some cases so low that their continued life is uncertain. It is thought that the South African Government would be unwilling to permit the closing of many of these properties since the gold obtained from them is substantial. However, the labour involved might be better deployed in some of the newer properties which are chronically short of staff. The City Deep figures were affected by the breakdown of two winders and the higher milling grade and better profits from West Driefontein failed to arrest the downward trend. The good returns from Hartebeestfontein led to expectations that the company will pay a maiden dividend in June and the recent sharp decline in Vogelstruisbult has apparently been checked.

Some of the leading Orange Free State mines are expected to declare dividends during the next few days. There was some speculative revival in Freddie's but the continued losses made by Loraine and Freddie's Consolidated lowered the share prices. Most leading producers in this field recorded higher profits but failed to hold the previous levels. The sharp increase in Welkom, however, led to an advance in the share price.

All West African mines have now reported that their labour is back at work but the report of the Inquiry Commission must be awaited before any assessment of future wage levels can accurately be made. This may be very important for some of the smaller properties.

The good market for diamonds in the United States and elsewhere caused a rise in the price of Anglo American Investment and Consolidated African Selection Trust have now received their £1,750,000 compensation for the loss of the Sierra Leone areas. De Beers turned easier on unconfirmed rumours of a large Russian diamond find.

The record high price of copper brought about some recovery in share prices but this proved highly selective. Messina were supported by local buying and the market in Rhodesia Katanga proved erratic. Chartered were neglected and the price tended to slip away.

The firm demand for tin in the London market had a steady-ing influence on this section but share prices were unable to resist the general gloom of the international situation. An exception to this were Rambutan which were supported by favourable press comment. In the Nigerian and miscellaneous group prices followed the general trend. Interest was aroused by the publication of the British Tin Investment figures and the increase of distribution to 28 per cent against 24 per cent; this, however, is paid out of earnings of only 28½ per cent. The company has recently been spreading its portfolio outside the tin industry.

Lead/zinc shares were affected by rumours that a new Australian dock strike may soon begin.

## COMPANY NEWS AND VIEWS

### Joburg Bullish About Kaffir Prospects

The South African gold share market has been adversely affected by the sterling control measures introduced by Mr. Louw primarily because of the uncertainty created but the view of our Johannesburg market correspondent is that they are only likely to be of a very temporary nature. He writes to us that this is certainly the opinion of the Reserve Bank at the present time and for this reason they are not issuing any really detailed explanation, preferring to deal with questions as they arise. Notwithstanding the necessity for regulations there is the feeling that an unwelcome precedent has been created and that this has adversely affected interest in the Kaffir market. Nevertheless, there does seem to be sufficient uncertainty in Britain concerning the economic outlook to lead to some interest in gold shares, which is particularly welcome at this time as a sound case can be made out for buying selected shares, especially in the new mines. In any event, it is gratifying that London is no longer a seller and with the Continent inclined to be a buyer the market is in a good position to respond to any increase in investment interest at current price levels.

Local Johannesburg operators have also been encouraged by the government's action in assuming liability for the higher phthisis benefits in respect of mines which have ceased operation and by the sharp improvement in native labour in January. In this connection, it is as well to point out that many people in Johannesburg believe that the native labour question is exaggerated. Indeed, in lengthy conversation with the managers of four of the Union's larger mines—not dying ducks and not new mines—three of these admitted that their native labour was more than adequate and that they would have to have their quotas adjusted. This is not surprising if the point is appreciated that not only has there been a great advance in mechanization in recent years but also there have been improvements in management techniques.

But if that is so, the question naturally arises as to why tonnages are so adversely affected towards the end of the period of the seasonal decline in labour if, in fact, most of the mines have an adequate native labour force. The answer to this is that it is due very largely to the big turnover in native workers at that time of the year which results in a temporary drop in the output per man shift. While this large seasonal fluctuation in the labour supply is rather peculiar to the South African gold mining industry, it can be appreciated that if the same situation applied to an industrial concern the ultimate results would be very similar. For example if about 30-40 per cent of the labour force of say, British Motor Corporation, suddenly went on long leave and had to be replaced by workers who had forgotten most of what they had learned during a previous spell of work or, indeed, who had never done any work of a mechanical nature previously, the effect on production can be well imagined.

Shares in the new mines of the Klerksdorp district are attracting steady attention locally at the present time which, of course, is not surprising in view of the very rapid opening up of these mines. Nor would it be out of place to recall the shaft sinking records which have been broken by the Hartebeestfontein and Vaal Reefs Mines and the very short time it has taken Stilfontein and Hartebeestfontein to reach production and achieve a high rate of profitability. All these factors generously illustrate the relatively favourable working conditions in the Klerksdorp district, although it must be added that progress has been materially aided by the fact that rock temperatures in the Klerksdorp district are much on a par with those prevailing on the Rand, but are noticeably lower than in the Free State, thus simplifying ventilation.

### Consolidated Mines Selection Pays Same on Larger Capital

Consolidated Mines Selection Company is recommending a final dividend of 1s. 6d. per 10s. stock unit making, with the interim dividend of 1s. already paid, a total distribution for the year 1955 of 2s. 6d. per 10s. stock unit. The total distribution rate is unchanged from 1954 but it is made on the capital as increased by £45,000 by the free share issue of 90,000 shares in March, 1955.

Untaxed profits in 1955 contracted to £316,143 which compares with profits of £372,464 in the preceding year and reflects the dull market conditions prevailing last year. Taxation was less, £163,057 against £178,736, and after making adjustments for previous years the net profit figure was £164,478 against £199,537. The sum of £58,416 (£67,090) was allocated to general reserve which, after being charged with an amount of

£108,416 representing depreciation of investments, stood at £250,000 at the end of 1955 compared with £345,000 at the end of the preceding year and with £300,000 in March, 1955, after the capitalization of £45,000.

A hopeful outlook for the company's prospects in the months ahead is given by the chairman, Mr. A. C. Wilson, in his annual statement which is reported in this issue on page 302.

Dividend warrants will be posted on or about March 27 to members registered at the close of business on Monday, February 27. Meeting, London, March 27.

### Western Selection and Development Pay 10 Per Cent

Due entirely to a decrease in revenue from dividends and untaxed profits of Western Selection and Development Company, the mining finance house chiefly concerned with mining in British West Africa, fell to £128,388 compared with £154,156 in the preceding year. After deducting capital expenditure and income tax the net balance was £102,066 against £128,903. The single dividend distribution of 10 per cent equivalent to 6d. per 5s. stock unit absorbed a net £53,906 and compares with payments in 1954 of an interim of 7½ per cent and a final of 12½ per cent which required a total net amount of £82,500. Nil against £38,151 was transferred to investment reserve account leaving the carry forward at £117,437 against £69,277 brought in.

The preliminary statement also announces that the full report and accounts are in the course of preparation and it is hoped to post it towards the end of the month, and to hold the annual meeting in the latter half of April.

### Falcon Mines May Expand Operations

Falcon Mines' main producer, the Dalny Mine, achieved substantial success during the year ended September 30, 1955. This was due mainly to a higher mill throughput together with a rise in mill grade.

Year to Sept. 30	Tons milled	Per ton milled			Devt. fte.	Ore Reserves (000)
		Grade (000)	Yield dwt.	Cost* s. d.		
1955	162.6	3.39	27,568	30.0	5.8	457.0
1954	159.9	3.08	24,651	27.5	6.3	548.5

\* Includes development costs

+ Value 4.3 dwt. over 103 inches (1954 - 4.2 dwt. over 112 inches)

The company's other two smaller properties, Sunace and Bay Horse Mines (whose production statistics are not included in the table above) both increased their crushing rates. But due to rises in costs, only Bay Horse—by boosting its mill grade—was able to report higher working profits.

The past year's successful expansion of operations at Dalny was enhanced by the addition of £35,854 as against £21,417 representing net revenue from re-treatment of concentrates produced and stockpiled prior to September 30, 1954.

Year to Sept. 30	Total Revenue*	Taxa- tion £	Net Profit £	Divi- dends £	To Reserve £	Carry Forward† £
1955	155,783	Nil	142,761	79,433	49,218	23,518
1954	127,049	Nil	116,963	45,390	75,000	19,408

\* Including net revenue of £35,854 (1954 - £21,417) from re-treatment of concentrates produced and stockpiled prior to September 30

† After £10,000 (NIL) written off unquoted shares

Working profits of Sunace and Bay Horse Mines at £7,633 (£10,625) and £5,122 (£3,262) respectively are reflected in the above financial table.

Dividends on Falcon's issued ordinary capital of £453,903 were raised to 17½ per cent from the previous year's distribution of 10 per cent.

Now that the concentrates previously stockpiled at the Dalny Mines have all been treated, no further revenue from this source can be expected in the future. On the other hand, although ore reserves at Dalny decreased slightly during the past financial year development results since that date have exposed orebodies of a considerably higher grade than the average for the mine. Additionally, the deepening of the Rix shaft should soon provide further development ends below the 9th level and enable new ore to be opened up at an accelerated rate. This should result in a substantial increase in ore reserves, while the favourable developments at Dalny strongly suggest the possibility of expanding operations in the future.

At their present price of around 7s. 6d. Falcon 5s. shares yield nearly 11½ per cent. Mr. E. B. Papenfus is chairman. His statement to shareholders appeared in our last week's issue. Meeting, Bulawayo, Southern Rhodesia, March 27.

### Sharp Increase in Petaling's Output

The increase in output forecast by Mr. J. T. Chappel, chairman, Petaling Tin, in February, 1955, has been amply borne out during the company's past financial year. Indeed, with No. 6 Dredge operating in high grade virgin ground; No. 3 Dredge digging at an increased depth with good results, and No. 5 Dredge starting operations at Seaport Estate in May, it is not difficult to understand how the greatly increased acreage of ground was covered. Besides this, tin ore recovered per cubic yard showed a fractional gain.

Year to Oct. 31	Ground Treated	Tin Ore recovered	Production costs		Price rec. (£)
			Tons (000s cu. yd.)	Tons (lb.)	
1955	9,502.8	2.1	.49	162	8.55
1954	6,836.9	1.5	.48	175	8.99

Dividends paid on the company's issued ordinary capital of £513,333 in 4,400,000 shares of £1 each were raised to 85 per cent from 42½ per cent in respect of the previous year.

Year to Oct. 31	Mining Profit	Expenses	Net Profit	Dividends	To reserve	Carry Forward
					£	£
1955	909,762	338,622	477,722	305,433	29,167	122,878
1954	630,722	256,041	246,097	152,717	28,366	115,369

During the current year No. 6 Dredge will be operating in ground previously treated by the shallower digging No. 5 Dredge and a somewhat lower rate of output must therefore be expected from this source. On the other hand, No. 4 Dredge which is now being rehabilitated is expected to commence operations by about June. Although this will not be able to reverse the downward trend of production, the extra concentrates produced will be useful. Since October 31, 1955, only one quarterly report has been received from Petaling which showed that during the three months ended December 31, 1955, only 379½ tons of tin ore were produced as compared with the previous quarter's output of 485½ tons.

Nevertheless, such fluctuations must be expected in all dredging concerns and production from No. 6 Dredge's extremely large area will no doubt recover in due course. Meanwhile, despite the somewhat unpromising short term outlook, Petaling's future is most favourable. The company has exceptionally large reserves of mining land, and it is in a very strong financial position. With this in mind, even if uncertainties as to the future price of tin are taken into account the yield of some 21½ per cent obtainable on Petaling's ordinary shares at their present price of around 8s. 6d. is attractive. Mr. J. T. Chappel's speech to shareholders will be found on page 301 of this issue.

### British Tin Investment

Although British Tin Investment Corporation's investments are predominantly in tin, the Corporation has continued its policy during 1955 of making further extensions to its investment basis by broadening its interests in metals and minerals other than tin. Amongst other changes in the portfolio, the Corporation during the year invested in aluminium, oil, and asbestos whilst reducing its interest in manganese.

Mr. S. H. Smith, chairman, states in his annual statement to shareholders which appears in this issue on page 304, that given stable conditions the Corporation can look forward with confidence to a successful year. Meeting, London, March 28.

### RECENT FINAL DIVIDENDS AND PRELIMINARY FIGURES

Name of Company	Year Ended	Final Dividend		Net Profit after tax		Total Dividends	
		This Year		Last Year		This Year	
		%	£(000)	%	£(000)	%	£(000)
Kundang Tin	31.12.55	30	—	—	50	40	
Afr. & Eur.	31.12.55	25	820.8	888.2	25	25	
Jelapang Tin	31.12.55	125	—	—	125	100	
Larut Tin	31.12.55	35	—	—	60	60	
Rho. Corp.	30. 9.55	a 7½	79.9	70.7	10	10	
West. Selec.	30. 9.55	a 10	102.1	128.9	a 10	20	

(a) On increased capital

### Rand and O.F.S. Returns for February

Working profits of South African gold mines during February were based on a gold price of 248s. 9d. per ounce compared with 248s. 8d. in January. Most noticeable amongst the returns was that from West Driefontein which disclosed a rise in grade to 17.2 dwt. per ton from 16.6 dwt. In view of W. Drie's constantly improving development results during the past year or so this should not have come as a surprise. Indeed, readers of *The Mining Journal* Analysis of Rand and O.F.S. Quarterly Reports will have been aware of the improved circumstances for some time. Other good reports came from Welkom and President Brand which both showed increased profits and tonnage throughput. The following are the results in full.

Company	February, 1956			Year ends			Current Financial Year			Last Financial Year		
	Tons (000s)	Yield (oz.)	Profit+ (£000)	Tons (000s)	Yield (oz.)	Profit+ (£000)	Tons (000s)	Yield (oz.)	Profit+ (£000)	Tons (000s)	Yield (oz.)	Profit+ (£000)
Goldfields												
Doornfont' n	53	21,702	80.4 J	413	166,539	660.5	398	136,145	671.5			
Libanon	96	21,167	50.5 J	776	169,605	453.8	779	163,628	418.4			
Luipaards V	121	16,109	57.1 J	991	142,602	500.1	895	170,620	338.2			
Rietfontein	26	5,848	18.1 D	52	34,984	36.7	52	11,187	40.8			
Robinson	78	17,137	10.2 D	156	34,584	22.6	185	38,672	58.6			
Simmer	98	17,353	13.0 D	198	35,230	26.1	335	39,302	25.6			
Sub Nigel	64	19,680	67.6 J	529	166,055	614.2	528	173,821	747.1			
Venterspost	112	27,558	65.9 J	960	227,936	600.8	841	207,708	502.4			
Vlakfontein	37	13,764	67.5 D	76	28,164	137.7	77	24,258	146.3			
Vogels	100	25,477	64.4 D	203	51,743	269.4	205	52,919	223.5			
West Drie	71	61,057	494.0 J	497	390,906	3099.0	376	285,592	2207.7			
Anglo American												
Brakpan	101	17,273	9.4 D	210	35,858	26.0	209	35,570	27.2			
Daggas	205	46,840	266.0 D	405	92,641	525.4	436	99,758	614.2			
East Daggas	94	15,625	35.6 D	188	31,183	71.1	186	31,147	93.4			
P. Brand	53	42,75	350.0 S	258	208,248	1723.1						
P. Steyn	84	31,014	175.4 S	415	150,407	1834.9						
S.A. Lands	85	16,870	48.8 D	170	33,545	96.1	189	35,402	112.4			
Springs	126	15,472	12.8 D	250	30,786	26.8	232	31,705	15.3			
Welkom	83	17,764	25.6 S	408	85,386	95.5	83	86,254	78.2			
W. Holdings	76	29,378	171.1 S	371	141,920	838.2	75	141,920	838.2			
W. Reef Ex.	115	22,778	47.4 D	227	45,266	96.0	233	43,476	108.5			
Central Mining												
Blyvoor	101	57,494	404.1 J	831	471,715	3437.5	817	471,890	3615.9			
City Deep	m135	26,489	2.1 D	288	55,760	5.2	317	59,498	14.6			
Cons. M.R.	156	22,970	7.6 J	1	192,845	137.5	1,379	199,498	217.2			
Crown	267	43,727	35.1 D	552	89,449	75.4	558	90,613	95.5			
D. Roopdt	165	28,879	41.9 D	346	58,911	95.4	338	56,861	90.1			
E. Rand Pr'p	191	51,743	168.4 D	401	103,264	342.5	406	95,175	285.3			
Harmony	77	30,621	156.9 J	777	217,925	1110.0	254	90,870	276.8			
Modder B.	51	5,105	1.5 D	103	10,582	1.1	107	10,881	2.1			
Modder East	127	13,164	4.0 J	1,029	108,985	56.9	97	119,112	120.1			
Rose Deep	44	7,325	2.5 D	90	14,836	6.0	119	18,944	16.3			
Welgedacht	33	3,706	0.2 J	270	30,743	3.2	266	30,905	11.8			
J.C.I.*												
E. Champ	16	957	c 5.8 D	33	2,007	±12.1	38	2,886	11.3			
Freddies C.	67	12,321	149.2 D	141	24,181	L 99.2	179	35,866	L 90.6			
Govt. G.M.	230	29,549	d18 6 D	460	58,966	37.3	498	66,254	78.2			
Randfontein	240	23,696	e100 2 D	503	48,917	±200.7	519	58,833	172.3			
Union												
East Geduld	140	43,055	304.5 D	271	84,593	598.6	282	86,724	653.3			
Geduld Prop	101	16,031	35.6 D	205	28,566	73.7	190	32,149	88.2			
Grootvlei	180	38,973	208.9 D	370	80,100	435.9	364	77,666	434.1			
Marievale	87	17,496	79.2 D	137	35,801	163.5	148	35,422	169.1			
St. Helena	78	27,731	149.1 D	182	56,155	300.3	302	39,184	210.5			
Van Dyk	78	12,827	1.1 D	158	25,917	2.3	155	25,866	3.2			
General Mining												
Ellaton	31	7,506	h31 4 D	62	15,048	59.0	59	18,519	98.6			
S. Roopdt	26	6,122	21 5 J	202	50,096	177.9	218	47,295	161.0			
Stilfontein	84	33,015	f195 3 D	167	65,641	389.6	164	64,576	412.5			
W. Rand C.	211	21,541	204 4 D	441	44,656	438.5	455	32,557	425.2			
Anglo American												
Hartbeesf' n.	55	25,850	144.2 J	406	176,147	863.8						
N. Klerksd'p	11	1,308	66 4 D	21	2,497	13.4	22	2,729	L 3.2			
Rand Leases	169	27,040	147.1 J	1,408	225,034	196.6	1,467	245,025	368.2			
Village M.R.	53	4,956	9.0 J	292	40,302	75.2	27	41,282	80.9			
Virginia	78	17,100	128 0 J	569	121,828	713.6	254	47,953	46.4			
Others												
Nigel Gold	30	3,514	1.8 D	61	7,201	1.8	46	7,043	4.3			
N. Kleinf' n.	101	12,055	3.0 D	206	24,306	6.5	204	24,555	7.0			
Sparwater	10	2,950	0.6 D	212	5,997	1.4	22	5,635	1.8			
W. Nigel	18	3,890	7.6 J	147	30,755	63.8	141	31,645	78.6			

\* Working Profit figures include Sundry Revenue.

† Working Profit.

‡ Gold and Uranium. L indicates loss.

# including Bird Reef, milled 38,000 tons, recovered 1,302 oz., profit £56,000 from gold and uranium. Subject to adjustment and before provision of quarterly loan instalment of £77,100.

b including £49,000 uranium profit — before quarterly loan and instalment repayments of £72,000.

c after crediting £43,000 estimated uranium revenue.

d after crediting £13,580 estimated revenue from pyrite.

e after crediting £380,000 estimated net revenue from uranium and acid.

f after crediting £299,000 estimated profit from uranium.

g after crediting £10,500 from uranium, before deductions of £750.

h excluding uranium profit which is declared quarterly.

i after crediting £104,728 from acid and uranium; before deducting repayments of £18,250.

j financial year end changed to September, therefore last year's figures not comparable.

k estimated working profit from uranium Oct.-Dec., 1955, £72,584.

l estimated working profit from uranium Oct.-Dec., 1955, £122,072.

m tonnage milled affected by breakdowns to two winders, but operating normally by end February.

## PETALING TIN, LIMITED

### MR. J. T. CHAPPEL'S STATEMENT

The Thirtieth Annual General Meeting was held in Ipoh on March 6, 1956. **Mr. J. T. Chappel, C.B.E., M.I.M.M.**, the Chairman, presiding.

The following is his statement which had been circulated with the Report and Accounts for the year ended October 31, 1955:—

The Company has had another successful year and the net profit was \$2,682,363 (£312,942). Interim dividends of 70% were declared and a final of 15% is proposed. An appropriation to General Reserve of \$250,000 (£29,167) was considered advisable, having regard to the fall in the value of the Company's investments in British Funds and Commonwealth Stocks, leaving a balance of \$1,053,244 (£122,878) to be carried forward to the Balance Sheet, which calls for no particular comment.

Since the close of the year a sum of \$166,954 (£19,478) has been received from the War Damage Commission, being the final payment of the Restoration Award amounting to \$262,117 (£30,580) in respect of No: 4 Dredge, which has been allowed following the decision to rehabilitate the dredge. The work is now in hand, together with electrification and alterations similar to those previously carried out to No: 3 Dredge to enable it to operate to a greater depth. It is anticipated that operations will commence in the middle of 1956.

It will be noted from the General Managers' report that No: 5 Dredge commenced operations in the Seaport Estate area in May, 1955. Considerable difficulties have been experienced with the water supply and dredging conditions generally, and returns have been somewhat disappointing. Lower returns have been obtained from No: 6 Dredge since it passed out of virgin ground into an area previously treated by No: 5 Dredge.

### TAXATION

Taxation paid, or due to be paid, to the Federation Government in respect of the year's operations amounts to approximately \$2,650,000 (£309,167) consisting of export duty on tin-ore and income tax; in addition, land rents, the business registration fee and other indirect payments arising out of the Company's operations are made to Government. Shareholders receive \$2,618,000 (£305,434) in dividends.

These figures demonstrate that Government is at least an equal partner with the Company in its mining operations without taking any of the mining risks, and that, as large investor and employer, your Company is playing an important part in the progressive prosperity and welfare of Malaya, which depend largely on the continued development of its industries and resources. For this purpose, the maintenance of orderly, responsible and stable government, with sound economic policies and fair and reasonable taxation, is essential. The menace of Communism, whether in the form of terrorism or the more subtle methods of infiltration into the labour forces and schools, continues to be the main danger to the maintenance of orderly and stable government, and there must be continued vigilance at all levels. It is very encouraging that the Chief Minister of the Federation, at his meeting with the Secretary General of the Malayan Communist Party at Baling last December, took a firm stand against recognition of the Party in view of its record of murder and destruction and its adherence to ideologies unacceptable to the peoples of Malaya.

### INTERNATIONAL TIN AGREEMENT

Last year I referred to the International Tin Agreement, which has been ratified by Her Majesty's Government on behalf of the Federation. Sufficient consumer countries have now ratified, and a recent press report indicates that Indonesia will do so shortly, thus providing sufficient ratifications on the producers' side also to permit the Agreement to come into force.

Shareholders may have noted various, and sometimes confusing, reports in the press regarding the threatened strike last month by those of the Company's employees who are members of the Malayan Mining Employees' Union. Through the good offices of the Labour Department, the strike was called off by the Union at the eleventh hour. The incident is closed and I will not therefore go into the details of the dispute, which extended over a period of six months. The good relationship previously existing between the management and the labour force has now been re-established, and I trust the Union will co-operate in its maintenance in the best interests of all concerned.

During the current year No: 6 Dredge will be operating almost entirely in ground previously treated by the shallower digging No: 5 Dredge. A somewhat lower rate of output

must therefore be expected. I will not attempt to forecast the effects of the implementation of the International Tin Agreement, but the Company with its four operative dredges, large reserves of mining land, and substantial financial resources is in a strong position to face any foreseeable circumstances.

In conclusion, I am sure shareholders will wish to join with me in paying tribute to the continued efficient services of the Company's staff and labour force.

### CHAIRMAN'S ADDITIONAL REMARKS

As I indicated in my statement circulated with the Report and Accounts a lower rate of output must be expected during the current year.

Improved returns are, however, anticipated towards the end of the year when number six dredge will again enter an area of virgin ground and number four dredge will be in operation.

After reviewing the position at a Board Meeting held this morning your Directors have declared a first quarterly interim dividend of 7½% less income tax at 30% on account of the current year's profits payable on March 26 to shareholders on the Company's registers to-day.

The Report and Accounts were adopted.

## Company Shorts

**African and European Again Pay 25 Per Cent.**—Subject to audit the profit for the year 1955 of African and European Investment Company was £820,768 (£888,189) which was struck after meeting tax liabilities of £98,000. For the sixth year in succession the company is paying 2s. 6d. per 10s. share.

**Rio Tinto Increases Authorized Capital.**—At the extraordinary general meeting of the Rio Tinto Company held on March 1, resolutions were passed increasing the authorized share capital of the company to £12,000,000 by the creation of 8,000,000 ordinary shares of 10s. each and altering the directors' borrowing powers. New capital is required to finance the company's new developments and the next phase of its exploration programme. It was announced at the meeting that negotiations were proceeding satisfactorily with regard to the company's interests in Canada and Australia.

**Platinum Rights Issues.**—Treasury consent has now been obtained for the rights issues to shareholders of Potgietersrust Platinums, Waterval (Rustenburg), Platinum Mining and Union Platinum Mining. Shareholders in Potgietersrust Platinums are to be offered 1,177,500 new 9d. shares at 8s. per share in the ratio of 1 for 10. Waterval shareholders are being offered 675,000 new 2s 6d. shares on a 1 for 10 basis at 13s. 6d. per share and shareholders in Union Platinum will be offered 300,000 new 5s. shares at 13s. per share on a 1 for 10 basis.

These companies are raising new funds to enable them to take up their entitlement in the new issue being made by Rustenburg Platinum Mines which is offering 60,600 new £1 shares at £17 per share.

The Waterval Company is also subscribing for its proportion of the rights issue being made by Union and Potgietersrust Platinums. Union Platinum will also participate in the Potgietersrust issue.

None of the new shares involved will rank for dividends in respect of the six months to February 29 declared on February 22. Provisional allotment letters will be posted on March 29 to shareholders registered on March 13.

**Barrow Hepburn and Gale Maintain Dividend at 25 Per Cent.**—Despite the most difficult trading conditions in the tanning industry Barrow Hepburn and Gale have been able to report a substantial improvement in the net trading profit for the year 1955 before taxation of £382,405 which compares with £324,940 in the preceding year. After all charges including higher taxation liabilities the net profit for the year at £221,414 was slightly lower than the 1954 net balance of £221,574. With a final dividend payment of 15 per cent making 25 per cent for the year which absorbed £57,500 the forward balance, after accounting for all other appropriations amounted to £307,900 compared with £304,868 brought in.

**Amcor to Explore Property of Northern Transvaal (Messina) Copper Exploration.**—African Metals Corporation ("Amcor") has taken up its right to explore the property of Northern Transvaal (Messina) Copper Exploration. This right gives Amcor an entitlement to investigate the property over a five year period commencing February 1, 1956, during which time it has the option to purchase the property either for the sum of £250,000 in cash or for £125,000 in cash together with a royalty on each ton of copper produced.

## THE CONSOLIDATED MINES SELECTION COMPANY LIMITED

### GOOD PROGRESS OF NEW MINES IN O.F.S. AND FAR WEST RAND

The annual report for the year ended December 31, 1955, and the statement by the chairman, **Mr. A. C. Wilson**, have been circulated to stockholders.

The following are extracts from the chairman's statement:—

The year under review has been a disappointing one for investors in South African mining shares, the market in which was apathetic.

The principal concern of the Board of a company such as yours is to try and find investments with good long-term potentialities and to avoid being too greatly influenced by fluctuating market conditions. In general we have every reason to be satisfied with the progress of the mines in which we are interested. Our investments in developing mines were made on the basis of calculated yields to be received when the mines are in full production, and developments during 1955 have gone far to confirm the accuracy of our forecasts. Thus, while markets have been idle and depressed, progress on the mines has been steady, and, in some cases, spectacular.

In the latter part of the year President Brand entered the dividend lists with a payment of 1s. per 5s. unit and President Steyn and Western Holdings with payments of 6d. and 1s. 6d. respectively, per 5s. share. From now onwards revenue from these and other Free State mines will gradually build up and before long should, of course, result in improved returns from the Finance Companies interested in that field. Similarly, the new mines in the West and Far West Rand areas are progressing favourably and should soon be making useful contributions to our dividend income.

Thus while the recent lack of public interest in the South African mining share market is disappointing and limits the opportunities for the profitable realization of investments, our main business is not adversely affected by this factor.

In fact dull markets provide opportunities of purchasing shares at levels which should prove favourable. We have therefore somewhat increased our investment portfolio over the year, in part by exercising rights which accrued on existing holdings.

Despite the fall in values of South African mining shares our investment position remains extremely strong. At the date of the Balance Sheet the extent of the appreciation of market values over book values is only slightly less than the position at the end of 1954, when markets were much more buoyant. Our Rhodesian base metal interests improved substantially in value over the year.

We are proposing to maintain the dividend at the same rate as previously though the free share issue to stockholders made in the early part of 1955 results in our paying out slightly more than for 1954. The amount we are able to distribute in dividends is, of course, dependent on the revenue from all sources but in normal circumstances our dividend income is the principal regulator. I have already referred to the prospects of increasing income from our Orange Free State mining interests and there are other promising indications. The price of copper improved substantially in 1955 so that income from our Rhodesian interests should be well maintained, and with diamond sales achieving an all time record last year of £74,000,000, the outlook for our diamond holdings appears good. Any estimate of dividend income for the current year is subject to a number of uncertainties; not least of which is the scope and effect of any turnover of investments. Even so we have every reason to believe that the total dividend income in the present year will compare favourably with last year's figure.

*Copies of the Report and Accounts, incorporating the full statement, are obtainable from the company's office at 11 Old Jewry, London, E.C.2.*

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## THE NATIONAL BANK OF INDIA

### BALANCE SHEET AGAIN REFLECTS EXPANSION REPERCUSSIONS OF THE "CREDIT SQUEEZE"

The annual general meeting of The National Bank of India, Ltd., will be held on March 27 at 24 Bishopsgate, London, E.C.

The following are extracts from the Statement by the Chairman, **Mr. J. K. Michie**, circulated with the report and accounts for the year to December 31, 1955:—

Our balance sheet again reflects expansion, the total of our consolidated figures being £168,653,013 against £162,031,432 at December 31, 1954.

After full provision for taxation, bad and doubtful debts and other necessary reservations our consolidated net profits are £421,839 against £385,923 for the previous year. The two dividends declared total 15%, which is the same rate as for 1954.

In common with other Banks we have suffered a considerable fall in the value of our holdings in Government securities, but this has been taken care of internally.

### INDIA

Generally, the production targets set for the first five-year plan have been reached or exceeded and Government is facing its second programme with some confidence.

As a part of her economic policy India has just announced her decision to nationalize Life Insurance so that she may channel the growing funds from this source more directly into the five-year plan than happens through the individual investments by Companies in Government securities, etc.

The immediate results of Government's action have been a sharp and general fall in Stock Exchange values and a recrudescence of uncertainty in the minds of industrialists, Indian and foreigner alike, regarding Government's further intentions towards the private sector, and this uncertainty has not been relieved by the principles of policy outlined by the authors of the second five-year plan.

The Imperial Bank of India is now the State Bank of India and a controlling interest has been acquired by Government through the Reserve Bank of India. It was foreshadowed that certain other indigenous Banks would be included in the new State Bank, but so far this has not been done. The primary reason for the change of ownership and control was the provision of banking facilities in rural areas at a faster tempo than a purely commercial undertaking could justify.

A very regrettable feature of the banking year has been the strikes and at times near-riots initiated by banking Clerical Staffs at Calcutta, Bombay and other of the principal cities which arose out of certain provisions in the Industrial Disputes (Banking Companies) Decision Act, 1955, which laid down the general lines on which staff should be paid.

At time of writing the atmosphere is one of comparative peace, but if the Central Government is to lay down rules they should at least ensure that they are kept by both sides.

### CEYLON

Generally the economic picture of the Island is a favourable one. Lower rice prices combined with a larger internal production greatly improved her balance of trade. Rubber prices have remained at remunerative levels, but the course of tea prices has borne a close resemblance to a fever chart, and no one can yet say that it has settled at "normal", although it is thought that the principal factors which caused last year's extreme swings have worked themselves out. The recent rapid increase in Ceylon's rice production is a fine achievement although at the moment a severe drought is causing a setback.

### BURMA

Falling rice prices have again troubled Burma but this was countered to some extent by larger rice exports. Nevertheless her sterling balances declined sharply from £414 millions to £32 millions over the twelve months as orders previously placed for large quantities of capital goods had to be paid for.

Given successful handling of the present somewhat critical balance of payments position there is no reason why Burma should not achieve and maintain a favourable balance of trade.

### BANK RATE RISES

A year ago to combat inflation the Bank of England rate was raised to 4½%; later the "credit squeeze" was ordered, but even together these measures unfortunately have been proved inadequate. As I write the Bank rate has been hoisted to 5½% and other measures taken aimed to restrict spending. The sharp fall in the gold and dollar reserves is another disquieting feature and is a reflection of our adverse trade balance. So without doubt we shall have further and very necessary anti-

inflationary measures imposed upon us, we as a community having failed to impose them on ourselves.

As a British overseas bank our interest in the economic measures taken by this country lies partly in the repercussions they have elsewhere. For instance, it is vital that the United Kingdom should be able to continue to make important contributions to the Colombo Plan and to other similar developments within the Commonwealth as well as to expand its investments abroad through private enterprise. If we cannot do these things we shall lose our place in the markets and in the regard of the countries concerned.

It has to be realized that the effects of the credit squeeze do not begin and end in London or in the United Kingdom. It is true that the centre of the sterling area naturally takes the first pressure; but the effects of action at the centre necessarily work their way outwards, and it would be idle to suppose that borrowers nearer the periphery of the sterling area will remain unaffected by recent monetary measures in this country. It

will be of interest to watch the longer-term effects in this wider context. Overseas banking cannot but be made increasingly aware of this aspect of the squeeze during the current year, and I would not be surprised to see firmer rates in many countries which to outward appearances so far have not been affected.

#### TRIBUTE TO STAFF

With the qualification I have made we have had the usual high standard of service from our Staff everywhere for which we offer our sincere thanks.

Our General Manager, Mr. Chisholm, is nearing the end of a strenuous tour of our Eastern Branches which is giving him and us an up-to-date appraisal of our business and of conditions in India, Pakistan, Ceylon and Aden from which we shall derive great benefit.

This of all times is not one in which to indulge in prophecy, but in so far as our immediate future is in our own hands I see no reason to be pessimistic.

## THE NATIONAL BANK OF INDIA, LIMITED

Registered in London under the Companies Act of 1862 on the 23rd March, 1866

ESTABLISHED IN CALCUTTA, 29th SEPTEMBER, 1863

Subscribed Capital	£4,562,500	£4,562,500
Paid-up Capital	2,851,563	£2,851,563
Reserve Funds	3,104,687	£3,104,687
Number of Shareholders	273,404	3,195

HEAD OFFICE - 26, BISHOPSGATE, LONDON, E.C.2.

### BALANCE SHEET, 31st DECEMBER, 1955

1954	1955	1954	1955
£	£	£	£
4,562,500	4,562,500	15,756,003	16,844,105
2,851,563 Paid-up 12/6d. per Share	2,851,563	11,586,979	11,964,059
RESERVE FUNDS — Including Share Premium Account £1,128,750 (1954 — £1,128,750)	3,104,687	13,546,717	14,802,755
PROFIT AND LOSS ACCOUNT :-	275,442	208,926	323,968
Profit unappropriated			
6,229,654	6,231,692		
CURRENT LIABILITIES, PROVISIONS AND OTHER ACCOUNTS :-			
Current and other Accounts, including provision for diminution in value of assets, taxation on profits to date and reserves for contingencies	100,831,411	CURRENT ASSETS :-	
97,214,299	29,202,932	Cash on Hand, at Call and Short Notice, and at Bankers	16,844,105
31,109,964 Fixed and Short Deposits	2,094,964	Investments at under Market Value :-	
2,410,751 Amounts due to Subsidiary Companies	4,000,000	British Government and other Securities quoted on the London Stock Exchange	11,964,059
1,722,068 Bills Payable	2,141,394	Indian, Pakistan, Ceylon and East African Government and other Securities quoted on Overseas Stock Exchanges	14,802,755
1,032,549 Acceptances for Customers	903,681	Unquoted Investments	323,968
Second Interim Dividend less Income Tax for the year ended 31st December 1955	122,974		
125,469	139,297,356		
£139,844,754	£145,529,048		

#### NOTES :

(1) Securities to the nominal value of £695,000 (1954 - £868,685) have been lodged as security for Government accounts and for guarantees issued to Indian Government Departments.

(2) Bills receivable rediscounted amount to £240,304 (1954 - £159,632) of which up to 23rd February, 1956 £150,331 have run off.

(3) There are forward contracts outstanding for the purchase and sale of Bills and Telegraphic Transfers.

(4) Liabilities have been incurred in respect of building contracts for new premises amounting to approximately £485,000 (1954 - £489,000).

(5) There are contingent liabilities in respect of confirmed credits outstanding amounting to £10,452,854 (1954 - £9,088,477).

(6) There are contingent liabilities in respect of guarantees entered into in the ordinary course of business.

(7) Overseas Current Assets and Liabilities have been converted at the rate of 1/6d. per Indian Rupee, 1/6d. per Ceylon Rupee, 1/6d. per Burma Kyat, 1/6d. per Pakistan Rupee and £1 per 20 East African Shillings, and other currencies at the rates of exchange ruling on 31st December, 1955.

W. KERR, Deputy General Manager.  
D. A. DEELEY, Accountant.

J. K. MICHIE  
R. L. HIRD  
E. J. MACKENZIE HAY  
Directors

### REPORT OF THE AUDITORS TO THE MEMBERS

We have obtained all the information and explanations which to the best of our knowledge and belief were necessary for the purposes of our audit. In our opinion proper books of account have been kept by the Bank so far as appears from our examination of those books and proper Returns adequate for the purposes of our audit have been received from Branches not visited by us. We have examined the above Balance Sheet which is in agreement with the books of account and Returns. In our opinion and to the best of our information and according to the explanations given to us the said Balance Sheet gives the information required by the Companies Act, 1948, in the manner thereby authorised for Banking Companies and on such basis the Balance Sheet gives a true and fair view of the state of the Bank's affairs as at 31st December, 1955.

We have also examined the annexed Consolidated Balance Sheet and Consolidated Profit and Loss Account of the Bank and its Subsidiaries dealt with thereby with the audited accounts of those Companies. In our opinion such Consolidated Balance Sheet and Consolidated Profit and Loss Account have been properly prepared from such accounts in accordance with the provisions of the Companies Act, 1948, in the manner thereby authorised for Banking Companies and, on this basis, give a true and fair view of the state of affairs and of the profit ascertained in the manner therein indicated of the Bank and its Subsidiaries so far as concerns members of the National Bank of India, Limited.

COOPER BROTHERS & CO. } Chartered Accountants.  
W. A. BROWNE & CO. }

## BRITISH TIN INVESTMENT CORPORATION

### LARGER NET REVENUE

### INCREASED WORLD CONSUMPTION

### MR. S. H. SMITH ON METAL PRICES

The twenty-fourth annual general meeting of the British Tin Investment Corporation, Ltd., will be held on March 28 at St. Swithin's House, 11/12 St. Swithin's Lane, London, E.C.

The following is the Statement by the Chairman, **Mr. S. H. Smith, O.B.E., M.C.**, which has been circulated with the report and accounts for the year ended December 31, 1955:—

The net revenue of the Corporation for the year ended December 31, 1955, after deducting administrative and other expenses, but before charging taxation, amounted to £641,313. This is an increase of £120,473 on the corresponding figure for 1954. The costs of administration and general charges are £9,569 for 1955 as against £8,660 for 1954.

Taxation calls for the provision of £296,675 and there remains a balance of £344,638 to which figure should be added the sum of £111,636 brought forward from 1954, and tax adjustments on prior years amounting to £7,263.

The available balance is £463,537. An interim dividend of 7½% was paid in August and absorbed £90,782. Your Directors now recommend the payment on March 29, 1956, of a final dividend of 20½% which will require a net amount of £248,137 leaving £124,618 to be carried forward.

### VALUATION OF HOLDINGS

In the Balance Sheet our quoted investments are this year, for the first time, sub-divided into those quoted in London and those quoted abroad. The latter heading relates to shares which do not enjoy an official London quotation. Your Directors have also decided to adopt the practice, followed by the majority of investment trusts, of writing down the book cost of their investments by any surplus arising on realizations. The Capital Reserve of £455,834 which appeared in the Balance Sheet last year, and represented accumulated profits on realization since the inception of the Corporation, has therefore been applied in writing down the book cost of the shares in the portfolio. The total book cost of the quoted investments at December 31, 1955, after making this adjustment was £2,479,010, and the corresponding market value was £4,462,321. The figures in the Balance Sheet of December 31, 1954, were—book cost £2,996,497 and market value £3,990,551. Unquoted securities are now carried in the books of the Corporation at £1,127 which is less than 0.05% of the total portfolio.

Your Directors are alive to the advantages of spreading the Corporation's interests both geographically and among a variety of metals and minerals. Some further small extension of the policy of broadening the basis of the Corporation by investing in metals and minerals other than Tin has, therefore, been made, but the Corporation's investments remain, and I think must remain, predominantly in Tin. Amongst other changes, we have reduced our investment in Manganese and increased our holdings in Aluminium and Oil, and have invested some of our funds in Asbestos.

### RISE OF TIN PRICE

The average price of Cash Standard Tin on the London Metal Exchange in 1955 was approximately £740 per ton. In 1954 it was £719 and in 1953 £731. The lowest level was £679 in January and the highest price was £840 in December. At the end of the year the price was £832. The price of Tin has tended to rise fairly steadily throughout the year.

Although the production of Tin in Malaya has been high, world production of Tin has been the lowest since 1949. Consumption, on the other hand, has materially exceeded that of 1954 with the result that the excess of production over consumption has been lower than for some years past. American and European consumer buying of Tin has been very active. There is little doubt that the purchases of Tin by the American Government for the stockpile, coupled with strong commercial demand, have forced up the price and may have deterred some consumers from building up their stocks.

### POSITION IN MALAYA

In view of our large holdings in Malayan Tin Companies, the political and economic condition of Malaya is of great importance to the Corporation. During 1955 there were important constitutional developments in Malaya. The Federal Legislative Council was replaced by a Council of 98 members of

whom 52 are elected. There is now a Cabinet of Ministers, the majority of whom are non-officials, and a Chief Minister who is also a non-official. Elections in July last produced 51 members from the Alliance Party out of the 52 elected members. The Alliance Party's election policy included a declaration that the Party wished to encourage capital investment in the Federation of Malaya and the new Chief Minister has stated that he regards Communism as the principal obstacle to the aspirations of his Government and the real menace to world peace.

These are reassuring statements to those who have large sums at stake in Malaya. It is to be hoped that practical effect will be given and given soon to the declared policy of encouraging capital investment. This can be done by encouraging prospecting, by establishing uniformity between the States comprising the Federation of Malaya in the regulations relating to the alienation of land for mining, and by assuring security of tenure to those who are prepared to invest the large sums necessary to equip such areas as appear to warrant development.

### CONDITIONS STILL HARD

The menace of the Communists is gradually being worn down, but things are still hard for those who live and work in the mining areas. As the General Manager of one of the most important Tin Mining Companies in Malaya said in September last: "The Emergency continues. The measures taken continue to be a burden to the staff as well as to the company, and the restrictions seem rather to increase than decrease."

In view of that, and remembering that the "Emergency" has now persisted for 7 years, members will undoubtedly wish that I should once more express our admiration for the courage, patience and devotion of those who work for the mining companies in Malaya and of their families who share their hardships.

### INTERNATIONAL TIN AGREEMENT

No progress was made in bringing into operation the International Tin Agreement during the year 1955 due to delay in ratification of the scheme by Indonesia, the world's second largest producer of tin. It has recently been reported that the Indonesian Parliament has approved the ratification of the Agreement and it seems possible that the International Tin Council may be called together during the first half of the year and that the Agreement may be in operation before the end of the year.

It is reported that the United States stockpile authorities are scheduled to withdraw from the market by the middle of 1956, and the operation of the International Tin Agreement may have an important bearing on the market price of tin during the latter part of the year.

### NON-FERROUS METALS

We have shares in several copper-producing companies. The price of Standard Copper was £235 per ton at the end of 1953, £290 at the end of 1954 and £400 at the end of 1955, and has exceeded £400 at times. There has been a resurgence of American demand and European requirements have also been high, whilst strikes in the United States, Chile and Rhodesia have seriously reduced available supplies and thus forced up the price.

The price of lead at the end of 1955 was £120 per ton, as compared with £107 for 1954 and £89 for 1953. Zinc reached a price of £101 per ton at the end of 1955—its highest point for the year. The corresponding price at the end of 1954 was £84 and the end of 1953 £75.

It seems probable that the demand for non-ferrous metals will continue to be keen. Lead and zinc prices in America should be helped by the fact that the American Government appears to be ready to stand behind both metals by taking the surplus into the stockpile if industrial demand falls off. Your Corporation's income should reflect the higher prices at which non-ferrous metals have been selling. I believe that, given stable conditions, we can look forward with confidence to a successful 1956 for the Corporation.

### NEW OFFICES

In April last the Corporation moved into new offices at St. Swithin's House. The new accountancy and secretarial staff has worked since then efficiently and satisfactorily. At the time when the change of office took place, your directors decided that it would be in the best interest of the Corporation that it should, for the first time, have its own investment manager. Mr. C. E. Thornton was therefore appointed as Investment Manager and the Corporation has already derived great benefits from this appointment, which Mr. Thornton has filled most zealously and adequately.

## Mine Returns

### TIN OUTPUT IN TONS OF TIN CONCENTRATES

Company	Jan.	Financial Year to Date		Company	Jan.	Financial Year to Date			
		Months since year end	This			Months since year end	This		
<b>EASTERN</b>									
Ampat	1564	1	1564	1204	Amal. Tin†	46	10	459	507
Berjuntai	735	9	616	557	Bisichi	614	1	614	78
Ipoh Tin	1184	10	213	442	Bisichi†	284	1	284	44
Keluang	1494	10	1535	881	Ex Lands	57	1	57	58
Kinta Kolas	244	10	133	1784	Gold & Base	47	1	47	43
Kinta Tin	34	1	34	4	Gold & Base†	12	1	12	15
Klang River	24	10	222	235	Jantar	19	4	70	81
Kramat Tin	274	10	313	315	Jantar†	18	4	77	74
Kuala Kampar	1673	10	1599	2094	Keduna P.	24	1	36	5
Kuchai	244	4	233	173	Kadina S.	34	1	21	21
Larut Tin	97	1	97	904	Kefit†	30	10	390	3644
Lower Perak	224	9	1896	1488	Naraguta Ex.	18	1	18	61
Malaysiam	124	10	1314	1091	Naraguta K.	124	1	124	142
Palang Cons.	200	6	1222	1320	Naraguta Tin	94	1	94	162
Petaling*	3794	3	3794	4402	Naraguta Tin†	34	1	34	7
Rahman H.	304	7	220	252	Ribon	144	10	1734	912
Rantau	371	7	320	448	Ribon†	10	254	111	111
Rawang Tin	90	10	995	657	S. Bukeru	44	1	44	7
Renong	774	7	455	769	S. Bukeru†	1	1	1	2
S. Kinta	2862	1	1714	3988	U. Tin	5	7	752	93
Siamese Tin	2904	1	2904	203	U. Tin†	1½	7	472	254
Sungei Kinta	342	1	342	154					
Taiping	714	1	714	57	MISC.				
Tambah	142	1	142	163	Beralt Tin	28	10	155	50
Tanjung	1173	1	1174	99	Beralt Tin†	162	10	1653	1719
Tongkah H.	482	7	408	265	Geevor Tin	55	10	540	520
NIGERIA					S. Crofty Tin	65	1	65	55
Amal. Tin	353	10	3530	3358	S. Crofty Tin†	1½	1	1½	nil

\* Quarterly.  
† Columbite.  
‡ Wolfram.  
a No. 3 Dredge.

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## BURMA MINES LIMITED

The following summarises the Operating results of BURMA CORPORATION (1951) LIMITED (Incorporated in the Union of Burma and jointly owned by Burma Mines Limited and the Union Government) for the SIX months ended 31st December, 1955.

### ORE EXTRACTION

Quarter ended 30th September, 1955	..	..	..	..	..	..	29,394 tons
Quarter ended 31st December, 1955	..	..	..	..	..	..	28,359 "
<hr/>							

### PRODUCTION

Concentrating Ore Milled (dry tons)	Ozs. Silver	ASSAYS % Lead	% Zinc
29,151	14.87	17.79	11.88
30,190	14.12	17.50	10.92

Marketable products were as follows:—

Quarter Ended	Refined Lead Tons	Refined Antimonial Lead Tons	Refined and Doré Silver Fine Ozs.	Copper Matte Tons	Nickel Speiss Tons	Zinc Concentrates 56%-58% Zn. Dry Tons
30 September 1955	3,942	85	348,236	66	14	4,035
31 December 1955	4,189	151	389,909	143	110	3,708
	8,131	236	738,145	209	124	7,743

### ESTIMATED REVENUE AND EXPENDITURE

	For Quarter ended 31 December, 1955	For the SIX months ended 31 December, 1955
Estimated Gross Revenue (after adjustment of value of Metal Stocks)	K. 1,03,41,900	£775,642
Estimated Operating Expenditure	K. 59,60,100	£447,007
Estimated Operating Profit	K. 43,81,800	£328,635
Estimated Taxation	K. 23,58,000	£176,850
Estimated Depreciation	K. 1,83,700	£13,777
Capital Expenditure	K. 2,16,400	£16,230
After deducting the foregoing estimates for Taxation and Depreciation the estimated Net Profit for the SIX months is K. 37,50,300 (£281,272).		
The Sterling figures shown are based on a Rate of Exchange of 1/6d. per Kyat.		
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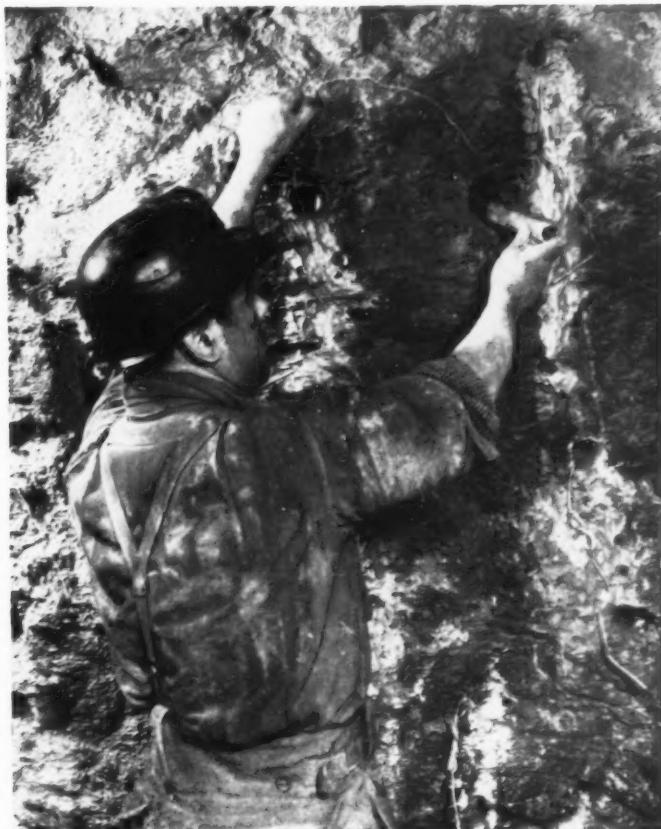
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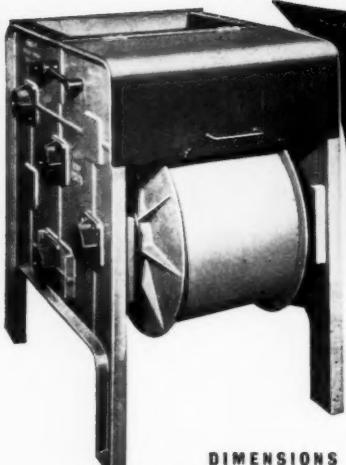
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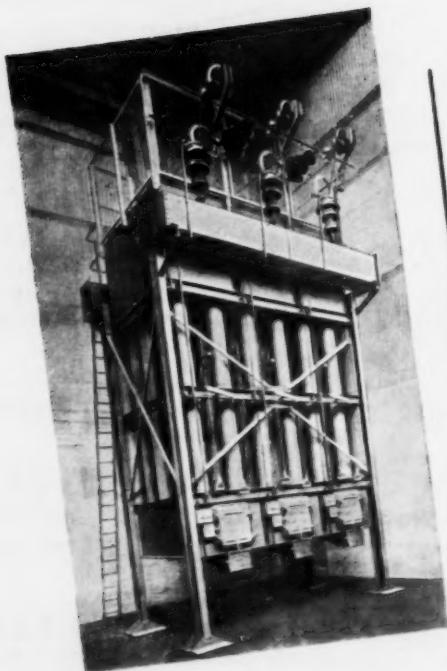
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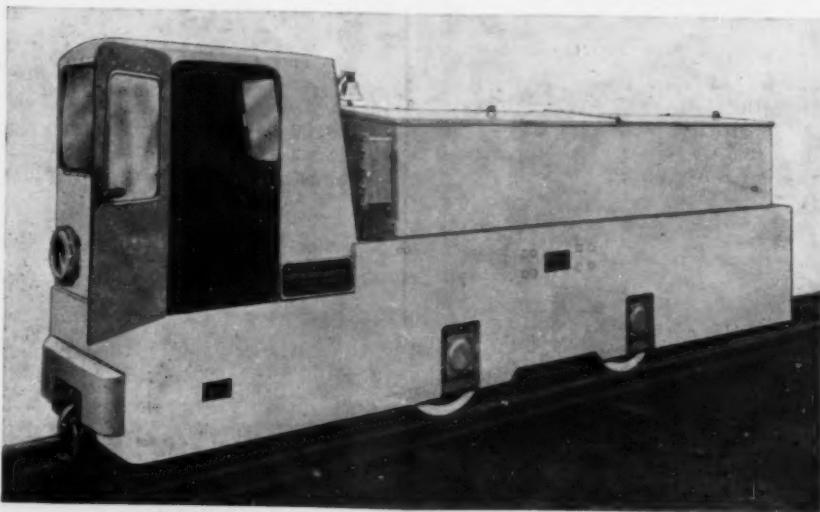
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